

TECHNOLOGY

REVIEW *December* 1950



technology review

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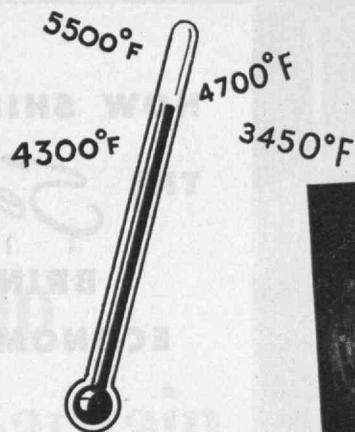
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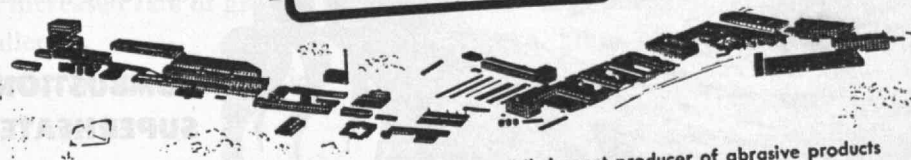
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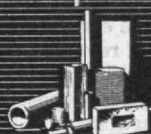
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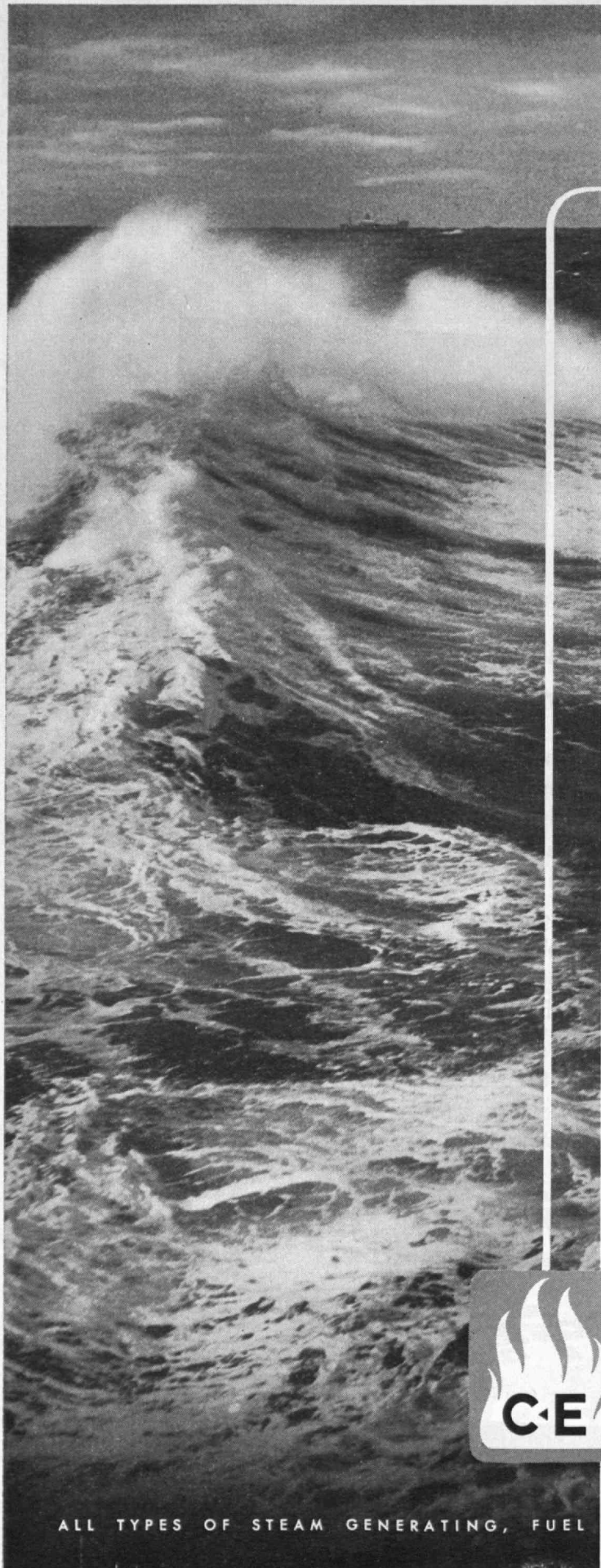
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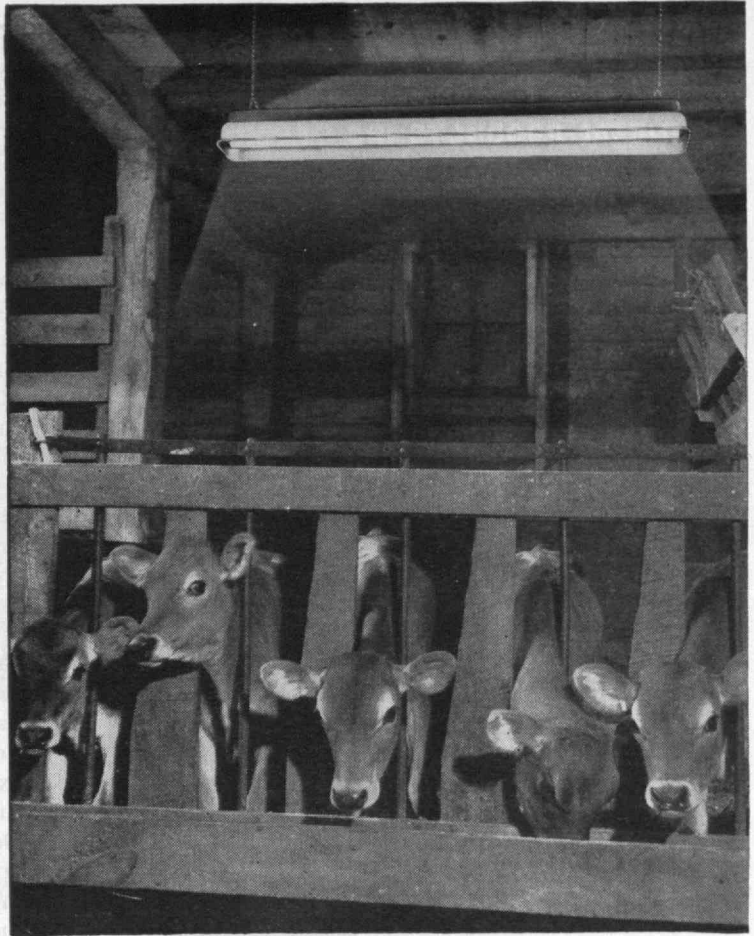


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egg production that has taken place was enough to pay for the sun lamp equipment in approximately three months.

While benefits obtained by calves, hogs and other farm animals have not all been determined, it is believed from experience so far that results will lead to extensive application of this lamp as a farm productive tool.

Westinghouse research pays many dividends. To industry, by developing cost-cutting equipment . . . to the public, by making available products that lead to better living . . . and by maintaining demand for its products that keep men and machines busy.

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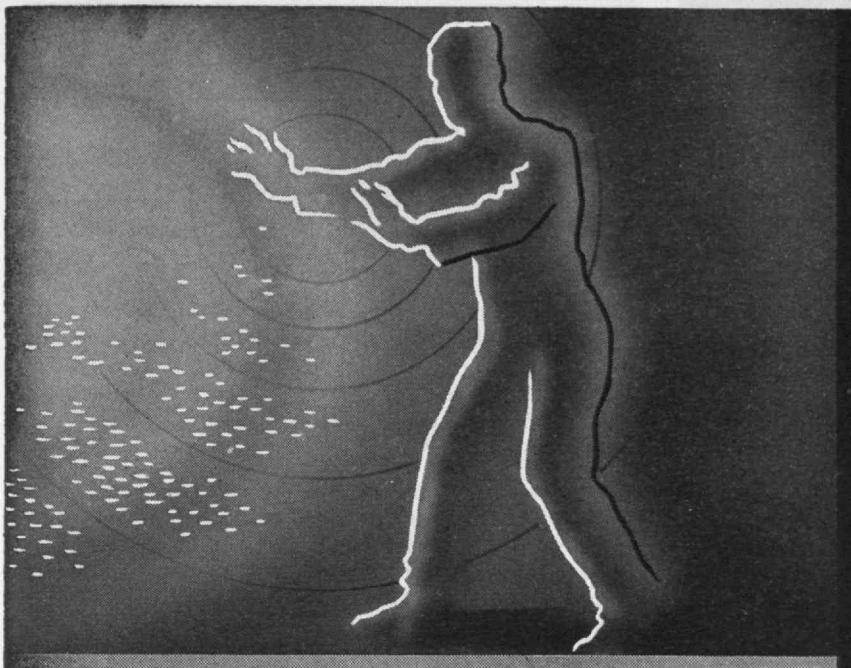
THE TABULAR VIEW

Sensation. — The contributions which taste, smell, and the cutaneous sensations make to man's perception and interpretation of his environment are ably presented (page 87) in the concluding section of a two-part article by FREDERIC W. NORDSIEK, '31. A wealth of experience in biology, public health, and the food industry has been combined with a flair for writing in Mr. Nordsiek's latest study for *The Review*. Mr. Nordsiek holds a patent on a dairy product, is contributor to the *Encyclopedia Americana* as well as to several periodicals, and since 1943 has been assistant to the director, Research Service Department, Standard Brands, Inc. New England's nature trails provide a change from the canyons of Manhattan where Mr. Nordsiek works and lives.

Security. — Shortly after the July issue of *The Review* published his "Promise of Technology," LUIS DE FLOREZ '11, breaks into print; this time with an examination of the training of tomorrow's engineers. His article (page 91) bears the authoritative stamp of much experience. The author is president of the de Florez Engineering Company, Inc., and vice-president of Doubleday and Company, Inc. He was director of the Special Devices Division of the Bureau of Aeronautics in 1943-1945, deputy chief of Naval Research in 1945, the same year in which he was made rear admiral. In 1944 Admiral de Florez was the recipient of the Robert J. Collier Trophy for achievement in aviation.

Sedgwick. — The impressions which a great M.I.T. teacher left on one of his students is recorded (page 94) by JAMES A. TOBEY, '15, whose long and useful career in public health makes him especially qualified to evaluate the professional work of biologist William T. Sedgwick who developed and expanded the Course in Biology at the Institute. From M.I.T. Dr. Tobey received the S.B. and Dr.P.H. degrees in 1916 and 1927, respectively, and, in addition, received LL.B. and M.S. degrees in 1922 and 1923, respectively, from Washington Law School and the American University. Dr. Tobey has served numerous private and governmental agencies on public health matters, has been associate editor of the *American Journal of Public Health*, and a frequent writer on topics of public health. Among his writings are several books, including *Public Health Law* and many magazine articles. It is a pleasure to welcome Dr. Tobey once more to the columns of *The Review* as a contributor of long standing.

Structure. — Inveterate photographer and extensive traveler, C. E. PATCH, '02, brings to *The Review* (page 83) the text, engineering drawings, and photographs of the Stillwater covered bridge between Old Town and Orono, Maine. Since no plans or specifications of the bridge could be found, the drawings and dimensions were reconstructed from the present structure. Mr. Patch is treasurer and industrial engineer for the Morton C. Tuttle Company of Boston.



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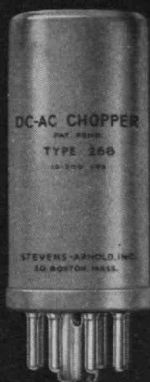
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Catapulting Capers

FROM ASA L. CARTER:

"Only once in the history of technology has a flywheel served for power storage in the same sense in which an electric battery is used for power storage." (Technology Review, page 16, Volume 53, November, 1950). I think this error should be corrected. See the articles about the "Electropult," in the following publications: *Aviation*, page 62, Volume 45, October, 1946; *The Engineer*, page 379, Volume 182, October 25, 1946; *Popular Science Monthly*, page 81, Volume 149, November, 1946. Pittsburgh 28, Pa.

[The article "Flywheel Engines" was included in the Trend of Affairs section of *The Review* and concerned the use of a flywheel as motive power for a gyrobus. The articles to which Mr. Carter refers describe an electric catapult system for launching large aircraft. Essentially, the assisted take-off system comprises an unusual form of induction motor with the rotor laid out as a flat track 1,382 feet long; the stator in the form of a small shuttle car which runs linearly along it to accelerate the aircraft during take-off. In this system, a 1,100 horsepower aircraft engine drives a D.C. generator coupled to a D.C. motor which in turn drives an A.C. generator and a 24-ton flywheel. A period of about eight minutes is required to accelerate the flywheel to its full speed of 1,300 revolutions per minute just before launching. When an airplane is launched, the energy stored in the flywheel is used to drive the A.C. generator to supply electrical power during four to five seconds for which the accelerating power is required.]

Comments, such as the above from Mr. Carter, are always a welcome indication that *The Review* is carefully and critically read, and we are happy to be reminded of the highly interesting development of the electropult. Evidently there were applications, other than the Howell torpedo, in which "a flywheel served for power storage in the same sense in which an electric battery is used for power storage," even though the delivery of such power did not extend for more than a small fraction of a minute.—Ed.]



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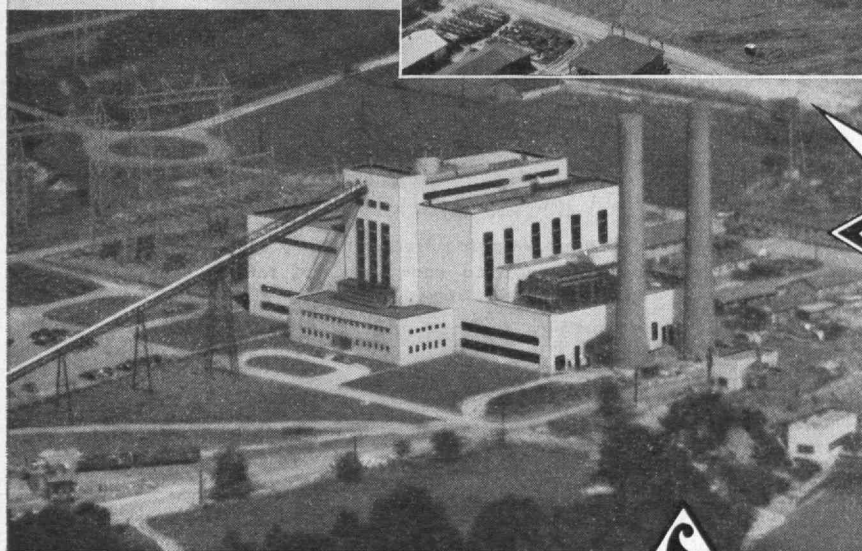
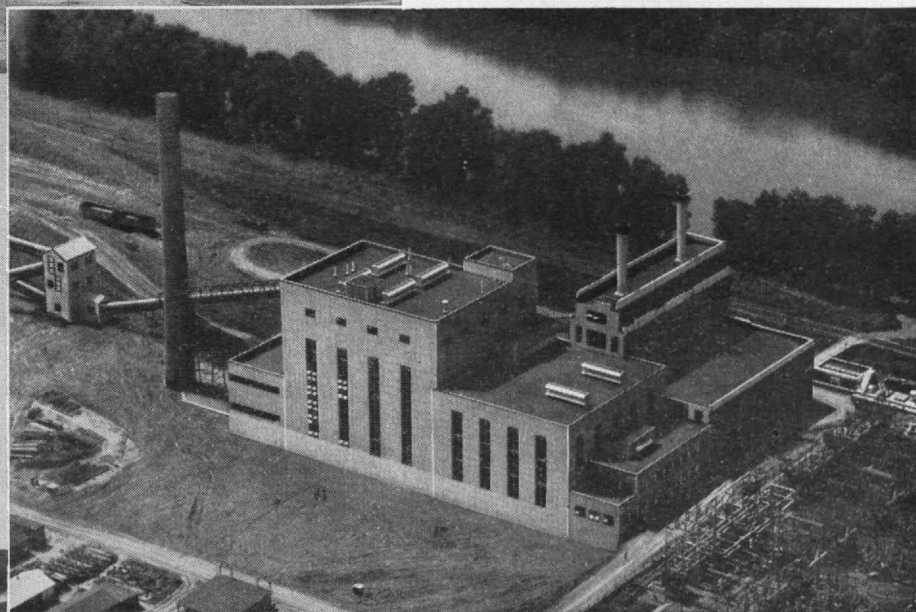
72 HAYWARD ST., QUINCY 71, MASS.

WITH THE NEED CAME THE POWER



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2. *Recently completed Bremono Power Station extension, 60,000 kw rated capacity.*
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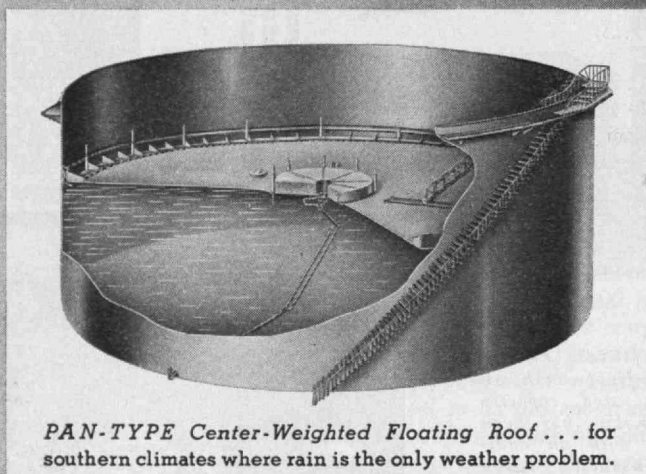
CENTER-WEIGHTED FLOATING ROOF TANKS

Patented design combines the stability and the vapor-saving, corrosion-resistant features of the double-deck floating roof with the more economical aspects of the conventional pan-type roof.

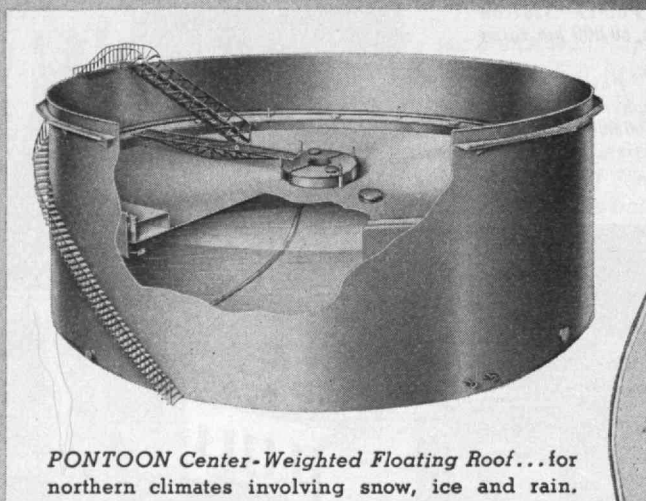
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Send for New Book on Graver Center-Weighted Floating Roofs.



PAN-TYPE Center-Weighted Floating Roof... for southern climates where rain is the only weather problem.



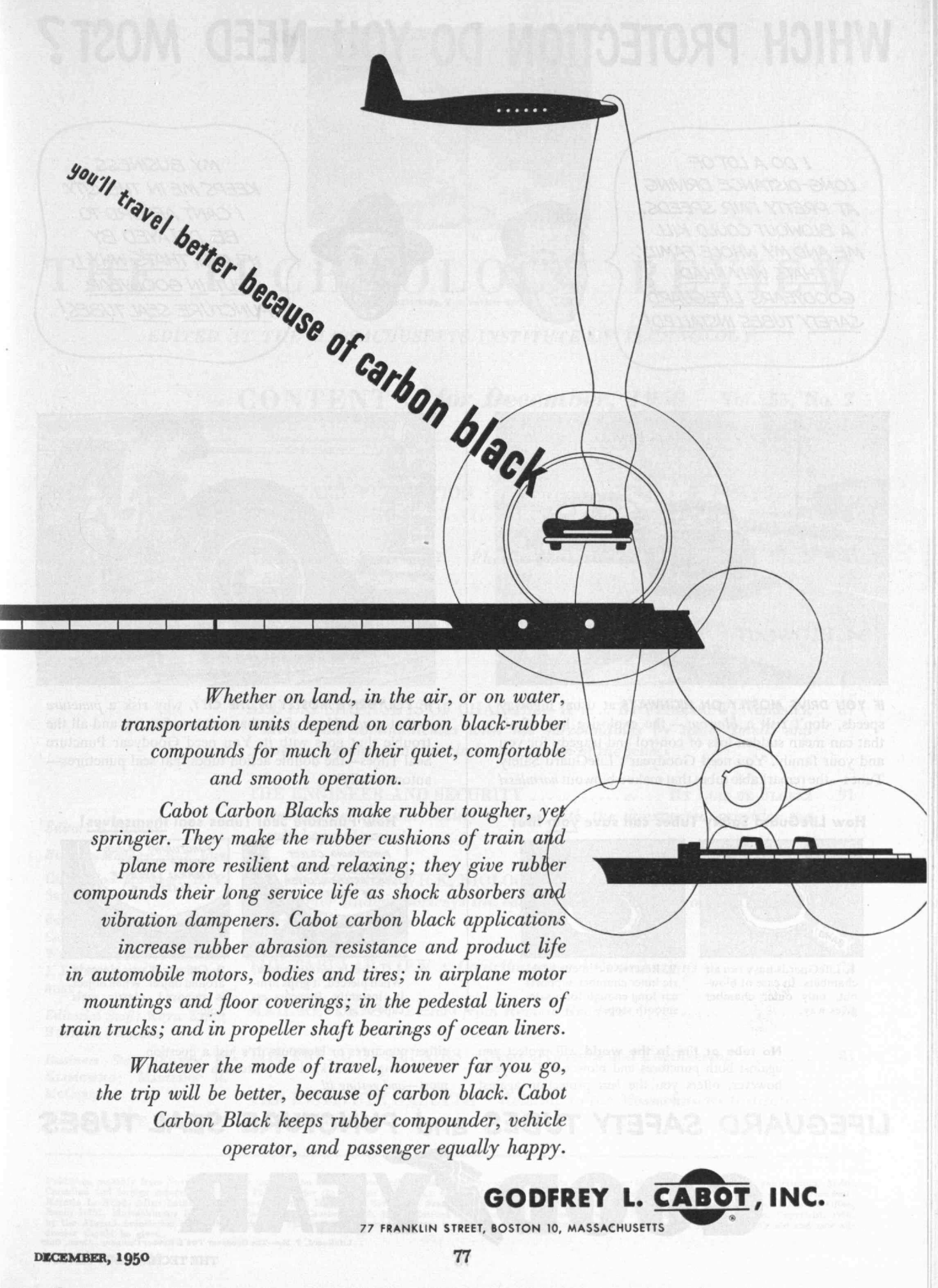
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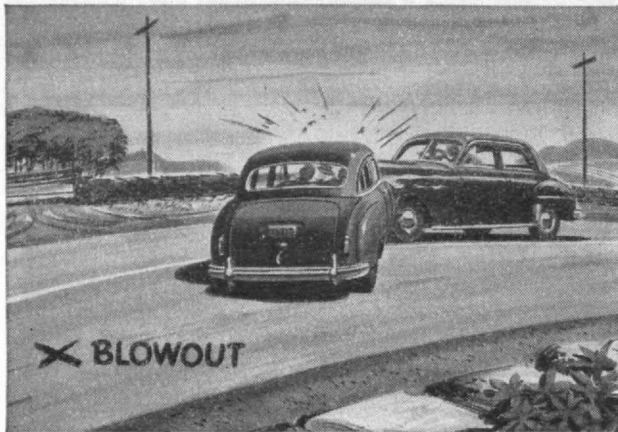
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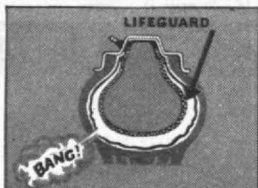
WHICH PROTECTION DO YOU NEED MOST?

I DO A LOT OF
LONG-DISTANCE DRIVING
AT PRETTY FAIR SPEEDS.
A BLOWOUT COULD KILL
ME AND MY WHOLE FAMILY.
THAT'S WHY I HAD
GOODYEAR'S LIFEGUARD
SAFETY TUBES INSTALLED!

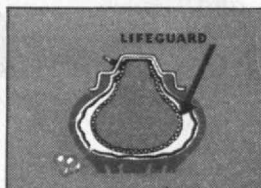


IF YOU DRIVE MOSTLY ON HIGHWAYS at usual highway speeds, don't risk a *blowout*—the explosive loss of air that can mean sudden loss of control and tragedy for you and your family. You need Goodyear's LifeGuard Safety Tubes—the remarkable tubes that make a blowout *harmless!*

How LifeGuard Safety Tubes can save your life!



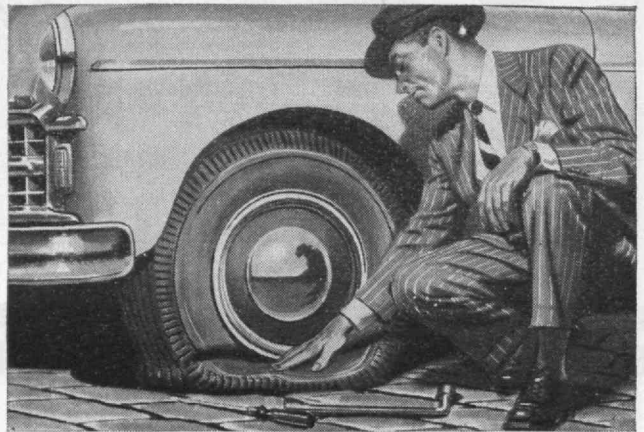
1. LifeGuards have *two* air chambers. In case of blow-out, only outer chamber gives way.



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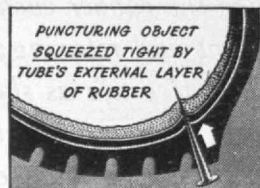
No tube or tire in the world will protect you against both punctures and blowouts. Goodyear, however, offers you the *best* protection against

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BE DELAYED BY
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PUNCTURE SEAL TUBES!

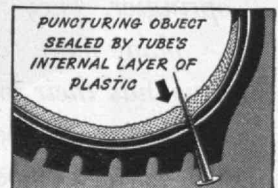


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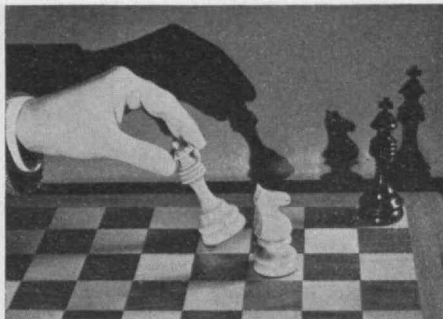
2. Gummy plastic closes in around object. When object is removed, plastic seals hole.

either punctures or blowouts. It's just a question of deciding which kind of protection you need most—and getting it!

LIFEGUARD SAFETY TUBES and PUNCTURE SEAL TUBES

GOOD YEAR

LifeGuard, T. M.—The Goodyear Tire & Rubber Company, Akron, Ohio



H. Armstrong Roberts

THE TECHNOLOGY REVIEW

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Edward B. Noel from *Black Star*

"The night has a thousand eyes . . ."

—Francis William Bourdillon

THE TECHNOLOGY REVIEW

Vol. 53, No. 2



December, 1950

The Trend of Affairs

Salts of the Earth

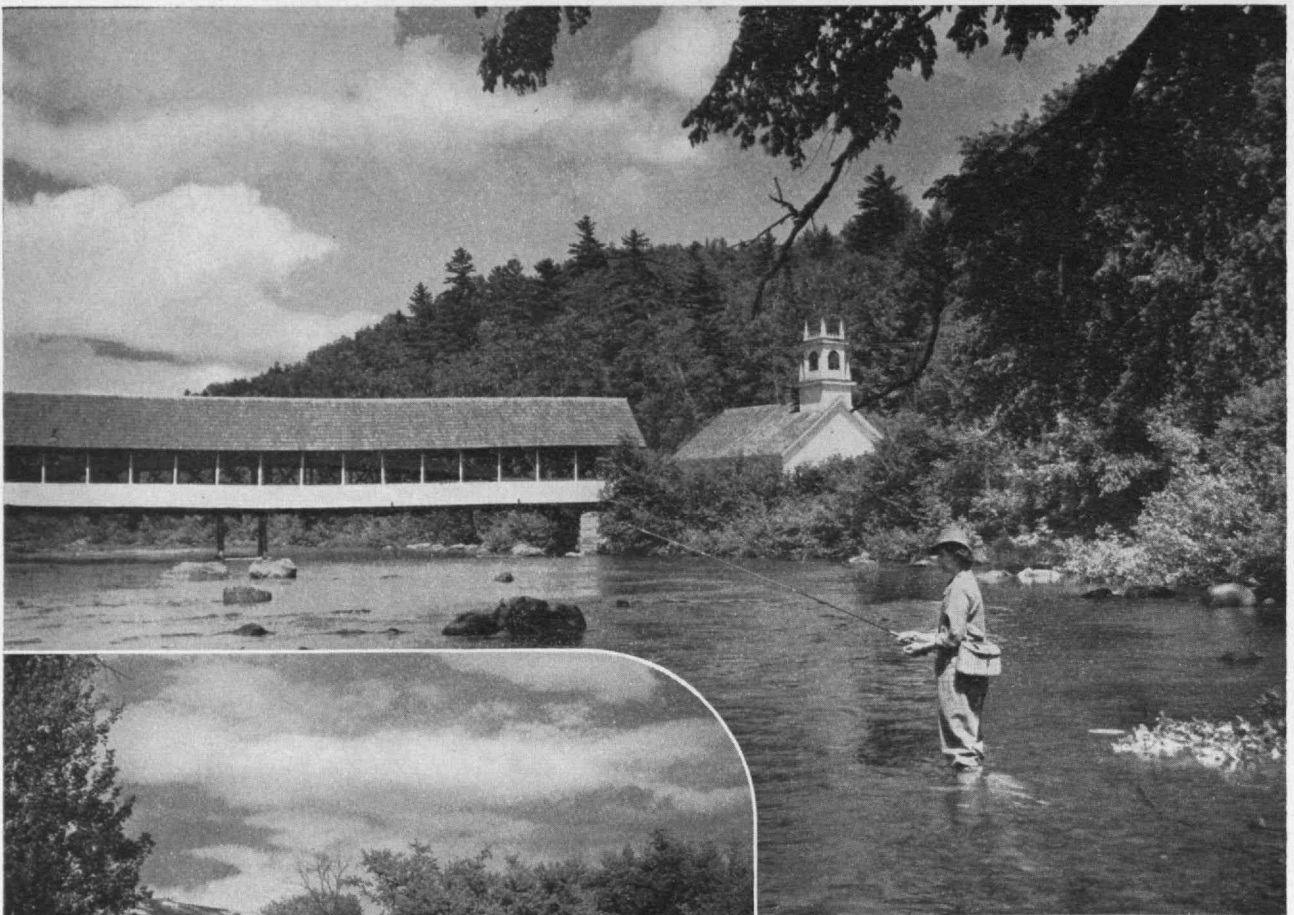
REplete with paradox is the relationship of the effect of earth minerals on human health. A classic example in this category is the occurrence of simple goiter and cretinism in certain inland regions, attributed to a deficiency of iodine caused by low levels of this element in the local soil, vegetation, and water. Drinking water is one normal source of beneficial iodine, and therefore it is theoretically possible to rectify a lack of this element by adding it to water supplies. In practice, however, the most expedient means of supplying iodine is the use of iodized salt for seasoning food.

Fluorine, another halogen element closely related to iodine, may have either baleful or beneficial effects when consumed in drinking water, depending upon the concentration present. An excessive amount of fluorine in water drunk during the early years of life, when the teeth are being formed, causes an unsightly irregularity in the outer tooth layer known as "mottled enamel." As systematic investigation of mottled enamel was undertaken, the paradoxical discovery was made that fluorine ingested in lower concentrations apparently has a beneficial effect upon the teeth, by increasing their resistance to decay. This observation is now being checked through long-term studies in communities where fluorides are added in controlled amounts to the public water supply. Meantime, it has been learned that fluorides also appear to inhibit dental decay when applied directly to the teeth.

A recent advance in knowledge of the effect of earth minerals upon human beings was discovery of the cause of a previously baffling disorder in infants that labors under the sesquipedalian designation "methemoglobinemia." This serious, sometimes fatal, condition occurs only in very early infancy, and has been observed on this continent mainly in the north

central United States and the central provinces of Canada. It is manifested as failure of the blood stream to convey oxygen to the body tissues, resulting in asphyxiation. The cause of methemoglobinemia is now known to be high concentrations of nitrates in well waters in the affected localities. Methemoglobinemia is limited to young infants for a most curious reason. Nitrates as such are innocuous, but these salts are reduced to nitrites by a type of intestinal bacteria that normally occurs only in infants during the first few weeks of life. The nitrites thus formed are the direct cause of the trouble. Adults may drink nitrate-laden water with impunity because their intestinal bacterial flora do not reduce the nitrates. So far, no public water supplies have been implicated as a cause of methemoglobinemia; all of the known cases have been traced to shallow wells, frequently of improper construction and location.

Thus man holds within his grasp the means for controlling the effects of iodides, fluorides, or nitrates occurring in the earth, as these minerals enter the human body in solution in water supplies. Iodized salt is the key to prevention of goiter and cretinism. Universal use of iodized salt is in fact advocated, as a moderate surplus of iodine does no harm. Legislation to require iodizing of all salt for human consumption in the United States is under consideration, but is not being pushed at present in the hope that educational activities will accomplish voluntary universal use of iodized salt. Water supplies containing excessive levels of fluorides or of nitrates are preferably condemned and replaced with other sources, or at least are kept from the age groups to which they do their respective types of harm. If the long-term studies bear out earlier findings, a sufficiency of fluorides to promote dental health may be assured either through controlled addition of this element to public water supplies, or by direct periodic application to the teeth.



Winston Pote from A. Decaney, Inc.

(Above): Covered bridge over the Ammonoosuc River at Stark, N.H. (Left): Old covered bridge across the Swift River on Route 302 near Conway, N.H. (Below): Near Jackson, N.H., where Ellis River joins Wildcat Brook, one may find this fine example of the covered bridge.



David W. Corson from A. Decaney, Inc.

As these photographs indicate the picturesque covered wooden bridge has not yet entirely passed into oblivion.

The reasons for covering a bridge are not always readily apparent to today's traveler through the rural sections where such structures may occasionally be found. Yet the roof structure, which was comparatively light and easy to repair, must have been effective in reducing the deterioration of the heavier structural members, and afforded at least some relief in keeping roads open during the seasons of heavy snow.



The Passing of the Covered Bridge

By C. E. PATCH

To silhouette the unhurried, serene, unrepining past against today's raucous bustle, few man-made structures serve as well as do the covered bridges spanning the streams and rivers in certain rural sections of the United States. Perhaps most numerous in New England, where they were originally built without benefit of any but the most simple rule-of-thumb engineering principles, these wooden tunnels "leading from light to light through a brief darkness" may yet be found occasionally in the middle western and central states in regions not yet wholly converted to the rising tide of stainless steel and plywood as building materials. Nevertheless, these protected crossings have undoubtedly seen their zenith and (like the cigar-store Indian, the one-horse chaise, or the practice of making purchases for cash in a state of dignified solvency) are rapidly becoming relics with which only the old fogies may have had contact.

Possibly Vermont and New Hampshire lead in the number of covered bridges still fit for use. But Maine, too, can afford interesting examples of ducts which, if they no longer resound to the jog trot of Old Dobbin's ironshod hoofs, still rumble at the passage of today's cushioned four-wheel vehicles. One such bridge, by no means the last of its kind, but near its last days according to rumor, is the covered bridge at Stillwater, Maine. It is a double-barreled bridge which crosses the Stillwater River, a by-pass of the Penobscot, near the boundary between the Maine towns of Old Town and Orono.

According to the writings of some of the old-timers, the bridge was originally started in 1835 to replace a ferry which was then serving the traffic across the Stillwater. There was some unfortunate feature in its design, however, and it toppled over. The design was corrected and the bridge is stated to have been completed in the following year, 1836. It was originally a toll bridge, but people going to church or to public

gatherings were exempt from payment. It was purchased by the town and made a free bridge about 1870.

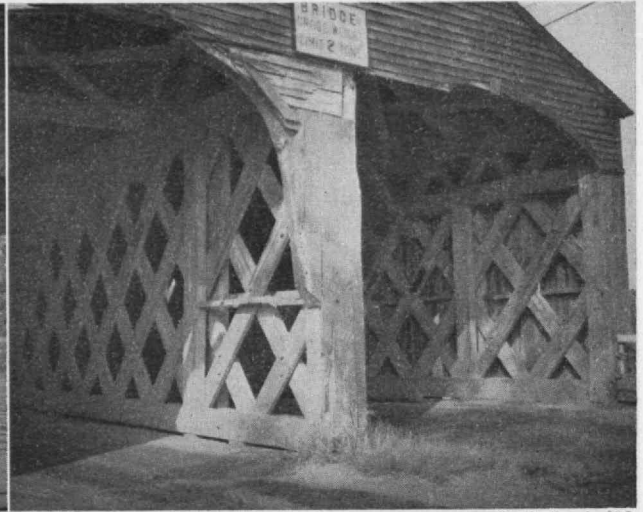
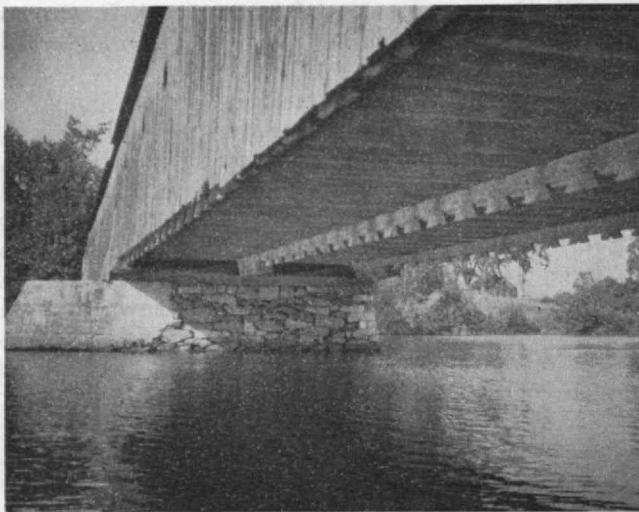
The historians tell that not long after its completion, the bridge served as the assembly place for an important meeting of the citizens of Stillwater Village. It seems that the village was to decide whether it would become a part of Old Town or of Orono. The bridge furnished not only an assembly place for the meeting but a convenient polling mechanism as well. All those citizens in favor of uniting with Old Town were told to assemble at one side of the bridge, and those in favor of Orono to gather on the other side. The official tellers then made the count and declared in favor of Old Town by a majority of 25 or so votes. One man on the Orono side who saw how the vote was going, and just didn't want to be among the losers, is claimed to have crawled through the center truss to the Old Town side in time to be counted with the winners.

The bridge is a monument to the Yankee mechanics of the early part of the Nineteenth Century and has withstood the elements well for more than a century. I quote from a letter from the bridge engineer of the State Highway Commission of Maine: "In 1936 there was only very slight damage to the superstructure, and I am very sure that in making repairs at that time

C. E. Patch, '02

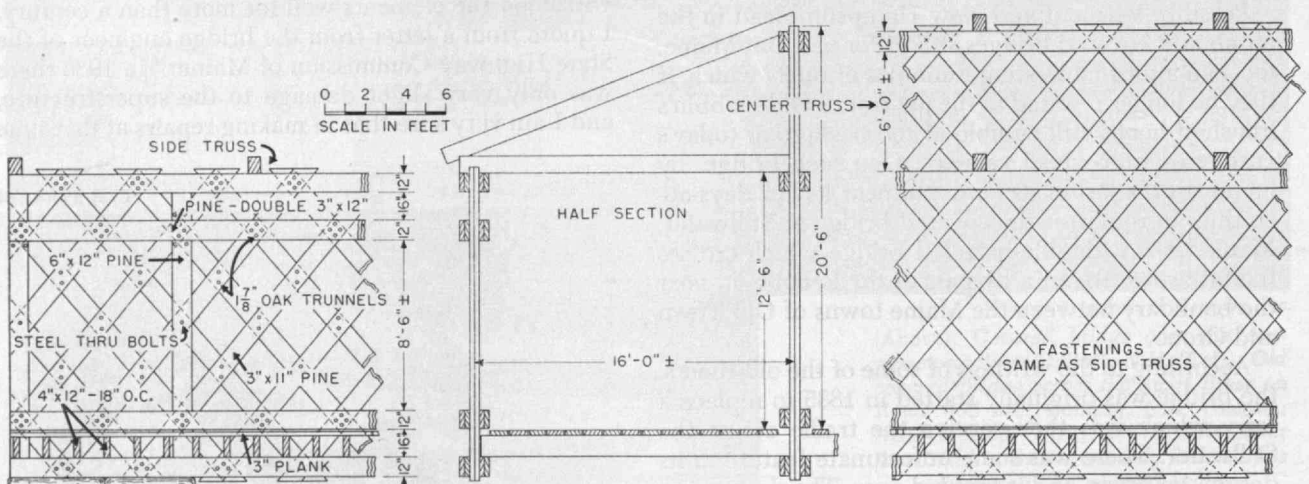
Broadside view of the fully covered bridge across the Stillwater River at Stillwater, Maine — near Old Town and Orono.





C. E. Patch, '02

Certain details of the construction of the Stillwater covered bridge are shown in these two photographs. The bridge has a span of 210 feet, with a center and end supports of stone as shown at the left. Entrance detail is shown at the right.



Structural details of the wooden bridge at Stillwater, Maine. The details are reconstructed from the bridge as now standing, since attempts to find plans or specifications were fruitless.

the Town did not make any material change in the construction." According to the *Bangor News*, the damage was to the roof, of which a part, at least, floated down over the falls just below the bridge.

All attempts to find either plans or specifications for the bridge were fruitless, so on a recent visit to Orono I took some measurements of the members and paced the spans, so that I have been able to reproduce, without too much error I hope, the structural design of the bridge. The main members seem to be of pine, and probably when the bridge was built there were plenty of big saw timbers of this species of tree growing within logging distance of the site, and plenty of mills in the neighborhood to saw the logs.

While there are a few metal fastenings near the ends of the bridge, the bulk of the connections are made with oak trunnels $1\frac{1}{2}$ inches to 2 inches in diameter. Doubtless it was the custom to drive these trunnels in as nearly a completely dry state as possible so that they would always be tight under conditions of normal humidity. At the level of the lower members of the roof trusses there are some 19 horizontal sway-bracing X panels in the length of the

bridge on each side. The diagonals appear to be about 4 inches by 6 inches and are notched into the roof members.

I understand that there are still a few citizens who would like to keep the old bridge in operation, but I expect that they are due for disappointment, because time marches on, and economics eventually overcomes sentiment. I sometimes wonder if anyone will want to inherit my broad razors.

Weep No More

THE humble onion and the robust garlic have been the butt of many jokes. Nevertheless, even those persons who ostensibly scorn these plebeian vegetables in reality, often relish their flavor when unwittingly consumed in low concentrations in soups, sauces, dressings, and similar prepared foods.

In order to avoid tedious preparation and also for facility in storage, both onions and garlic have been prepared in dehydrated form. The experience in this connection is of interest because the behavior of onions and garlic when dried has been found to differ

sharply from that of other vegetables, as well as from that of spices. For example, if onions or garlic are either blanched or sulfited, a flavorless dried product results. Ordinarily, either blanching (application of heat) or sulfiting (exposure to sulfur dioxide) is an indispensable preliminary step in the dehydration of vegetables — employed for the purpose of destroying or inhibiting enzymes naturally present in all plant tissues; otherwise, such enzymes usually cause deterioration of the dried product.

Another puzzling discovery was that spray-drying of either onions or garlic also resulted in a flavorless product. Spray-drying involves reduction of the material to be dried into finely divided form, and the forcing of this magma through a minute orifice into a drying chamber.

An explanation of both aspects of the anomalous behavior of onions and garlic in dehydration may be anticipated from the observation that intact onions or garlic are relatively odorless. This has been explained on the theory that the aroma and flavor principles (and incidentally also the lachrymal factor that causes weeping while onions are being prepared) reside in precursors that require activation by enzymes. Both precursor and enzyme occur within the vegetables, but are kept apart by cellular tissues. Therefore, when onions or garlic are cut, chewed, or otherwise broken up, precursor and enzyme come in contact and the aroma and flavor are released. Either blanching or sulfiting destroys the flavor potentialities of onions and garlic by destroying the activating enzyme.

Spray-drying is unsatisfactory because the necessary preliminary maceration liberates the flavor, which because of its labile nature is then destroyed during the drying operation. Dehydrated onions or garlic may nevertheless be ground into fine powder once they have been dried in the form of slices or chips. This is possible because the flavor precursor and the liberating enzyme do not interact in the absence of moisture, even though in contact. When such powders are moistened during food preparation, the flavor is released.

The flavor mechanism of onions and garlic just described also departs radically from that of spices. Spice flavors reside mainly in essential oils that retain their seasoning value when separated from the spice plant, and therefore may be isolated in potent, stable form by solvent extraction or by distillation. As a result, spice oils and other spice concentrates are widely used in the food industries in place of whole spices. The knowledge of the flavor mechanisms of onions and garlic summarized above has made possible the successful dehydration of these widely used condiments, thus providing them in similarly concentrated and convenient form.

Outguessing Mars

IN time of peace, the largest customer of American industry is the Department of Defense. In time of war, the demands of our armed forces have been so immense and varied that they have strained and shaped the entire economy. To our great misfortune, the possibility continues to exist that such demands

may have to be made again, and on a scale even exceeding that of World War II.

The ability of American industry to produce whatever engines of war may be required in the future is naturally under constant investigation by the military services; for example, one specific agency is the Industrial College of the Armed Forces. It is hardly to be expected that the problems and decisions of such bodies will be publicly discussed, but certain trends which this economy may be called on to meet with its machine tools, assembly lines, and above all, its trained man power are apparent merely from a reading of history. The following comments, though they merely graze a massive and refractory problem, may serve a useful purpose if they call attention to one of the most important aspects of this country's defense.

In World War I, when London was bombed by Zeppelins, the physical damage was scarcely noticeable. In the total panorama of the conflict, the raids struck a bizarre rather than an ominous note. The characteristic weapon of World War II, on the other hand, was the heavy bomber. Air bombing inflicted massive damage on every major city in Europe except Paris and Rome, and was even more devastating in Japan. It will take generations to heal the wounds, visible and invisible, that air power has inflicted on Western civilization.

Does this imply that, in a future conflict, industry will be called on to build even more and bigger bombers, not to mention other types of aircraft? Here at least is an obvious answer to an obvious trend. Yet there are doubters, the age of air power is still on the rise. Such skepticism does not arise entirely from the improvements that have occurred in antiaircraft measures, although some of these are of large proportions. It has been stated, for example, that, early in World War II it took about 1,000 shells to bring down an airplane (nearly a tenfold improvement over the ratio at the beginning of World War I). Toward the end of the war, however, it was taking about 500 shells with mechanical fuses; with proximity fuses, less than 100 shells were required. That one invention had caused a fivefold improvement. Whether the latest improvements in radar, fire-control instruments, and proximity-fused shells are sufficient to nullify the improvements that have occurred in airplanes is probably a matter for speculation, even to the informed military. The layman must drop the subject in favor of a still more speculative one — the possibilities of guided missiles as antiaircraft devices, as short-range bombers, and, in the dim future, as the primary carriers of long-range fire power. It would be a major irony of military history if, just as the piloted airplane had won virtually unqualified recognition as the offensive arm par excellence, it were replaced by an automatic dingus in some of its characteristic functions.

The shortcomings of present guided missiles are many and stubborn. Among other failings they lack range and precision. Compared, however, to the airplane at a similar stage of development, they are veritable models of perfection, and particularly if a new conflict is sufficiently far in the future so that various fundamental research programs can be completed, the likelihood that they will be a major arm is strong. During World War II the Germans built about 20,000

flying buzz bombs, or V-1's, and about 3,000 of the V-2's. There is little comfort in the fact that against London, and particularly during the later attacks against Antwerp, the relatively low-speed V-1's were singularly ineffective. Against the supersonic V-2's, the only defense conceived during the war was to bomb their launching platforms and supply points. In the words of Albert Speer, one of the top German air leaders, the flying bomb has had its day, but the rocket must be considered the future long-range weapon.

Whether they are small or large, long-range or short-range, rocket or jet-engine powered, missiles may be required in tremendous numbers. Perhaps the air frames, fuels, and propulsion systems of these missiles will present no unusual problems, and will be regarded by industry as merely another product to be produced at so many pounds to the man-hour. But each missile, whether used to replace an antiaircraft shell or to carry an atomic war head, must contain a complete control and guidance system — a mass of radars, amplifiers, fuses, servomechanisms, and gyroscopes — and all of these will be difficult to produce, difficult to assemble, difficult to calibrate.

Nor does it follow that American industry will be allowed to carry out these delicate tasks in quiet, clean factories each of optimum size, and located so as best to tap available supplies of labor and materials. Every nation with the necessary industrial potential is now straining to produce atomic weapons. It does not necessarily follow, however, that such weapons will be used in any new war. The major belligerents all built up ample stocks of poison gases during the last conflict but such manufacture and stock-piling did not lead to the use of gas. Nevertheless, the threat of these atomic bombs and gases, not to mention other new weapons, will increase the pressure to disperse key plants, to put them underground, to move them into empty areas of the country where there is less danger of being bombed out. With such dispersal will come greater difficulty in getting ample supplies of skilled labor and of producing intricate subassemblies.

A further complication of industry's problems is the unfortunate fact that probably never again will the United States enter a war as rich in natural resources as she was in 1940. For more urgent reasons than have ever before existed, the United States will have to control the seas. To operate at full war potential a decade or so in the future, this economy may well have to make bulk imports of oil, iron ore, bauxite, manganese, chromite, and dozens of other materials. To keep the war from our shores, this country will have to send abroad convoys of soldiers and supplies. A great ship-building effort will again be necessary, although very probably the stress will be placed on producing different types of ships than were needed in the last war. It is not sufficient that we be able to draw on a great moth-ball fleet. If, for example, naval warfare becomes primarily a battle between submersibles, as well it might, the United States may be forced to exceed Germany's remarkable effort of building, on the average, one submarine for every two days of the war. Without counting midget types, or boats not carried to completion, the Germans built 1,155 submarines during World War II.

In one vital resource, however, this country is gaining rapidly. The number of engineers in this country — which was about 27,000 in 1890, and 260,000 in 1940, and is believed to be somewhat in excess of 350,000 today — is expected to climb to about 460,000 by 1960. Engineering schools are currently turning out about 30,000 graduates per year, compared to an average of about 10,000 per year before the war; in some estimates this figure is increased by as much as 50 per cent. The present rate is expected to decline, possibly reaching a low point of between 10,000 and 15,000 about 1954. It appears likely that perhaps 20,000 new engineers will be added to our economy yearly during the next decade and a half.

It is regrettable that man's present state of political and ethical development has not reached such a point of advancement as would definitely preclude the possibility of armed conflict or other uses of force to achieve a goal. The machinery for averting such a catastrophe has been established, however, and so long as it operates, however imperfectly, there is hope that the voice of Mars may be limited in its extent. But if we take a realistic point of view, and no other is possible for survival under present conditions, the next best solution is to bend every effort toward outguessing Mars.

Man as a Meter

As we bring to a close in this issue the two-part article by Frederic W. Nordsiek, '31, on the human senses, word comes from London of a Conference on Subjective Judgments in which the main topic of discussion was the use of man as a meter to measure his surroundings.

Nearly 200 physicists, engineers, and psychologists convened at University College, and discussed experimental techniques using the taste, touch, sight, smell, and hearing of human subjects. The conference divided itself into two opposing groups: those who maintained that measurement of sensations was not possible and who pointed out the fallacies of experimental methods; and those who insisted that however philosophically unsound their techniques might be considered in the light of existing knowledge, they served their purpose if they gave data of precise operational value.

A topic which raised much discussion was the use of trained observers, defined as intelligent people capable of understanding the nature of the observations required of them.

The conference raised much greater interest than had been anticipated and it appears that the time is ripe for the techniques of subjective studies to be codified. It is interesting to observe that, in large measure, the success of the London conference was dependent upon the interchange of ideas of authorities from widely different fields, in order to help in bringing about the necessary measuring instruments which should, in due course, lead to increasing speed and efficiency in the practice of subjective assessment. The same policy has been followed in the United States and is actively pursued in the Institute's research activities.

All Experience Is of Changes — II

*Although Better Basic Understanding of Sensory Mechanisms
Is Sorely Needed, Great Improvement in Sensory Utility
Can Be Achieved by Intensive Training of Perception*

By FREDERIC W. NORDSIEK

THE first section of this article, which appeared in the November issue of *The Review*, showed that there are some dozen more or less defined human senses. An examination of sight and hearing indicated that these senses are cardinal to man's intellectual activities. Attention was also given to the devices which man has enlisted to aid his vision and hearing. Let us now turn to those human senses that have lower intellectual status, and for which man has had little success in developing aids.

The Finical Chemical Senses

Olfaction and gustation are usually classed together as chemical senses, although some of the dozens of theories that have been propounded¹⁰ to explain the mechanisms of odor postulate that this sense results from a physical, rather than a chemical, stimulus.¹¹

In technical importance, the chemical senses lie median between vision and hearing on the upper level, and the cutaneous senses on the lower. Similarly, human acuity in the chemical senses is determined less often than acuity in sight or hearing, but more frequently than acuity in the cutaneous senses. Thus, few persons pass through life nowadays without having their vision tested, even if only by a school nurse or motor vehicle inspector using the familiar Snellen visual acuity chart with its letters of varying sizes. Some people experience crude hearing tests, such as determination of the distance at which the ticking of a watch is heard, applied by a physician to test hearing after the healing of an ear infection. A few persons undergo accurate hearing tests by means of an audiometer during an examination by an otolaryngologist, or as part of hearing conservation programs carried out by public health agencies. In general, the only individuals who experience any test of their acuity in the chemical senses are certain employees of food, beverage, or perfume concerns.¹² These are the persons who participate in the product development and quality control programs of such companies, either as experts or as members of flavor or odor judgment juries. Finally, acuity in the cutaneous senses is never tested, except insofar as such faculties contribute to manual dexterity, measured by tests given for vocational guidance or personnel hiring purposes.

Such studies as have been made of acuity in the chemical senses have led to certain broad conclusions. Thus, women have been deemed to have more sensitive taste (not flavor) perception than men.¹³ Teen-age boys and girls have been found to be more discerning than adults in the judging of oranges.¹⁴ This latter con-

clusion is reinforced by the histological observation that taste receptors are more numerous in the oral cavities of children than of adults.

Anosmia has been studied. This deficiency of the smell sense may be inherited or acquired, and may be structural or functional. Total human anosmia is unknown, but partial anosmia is common. The study of partial anosmics holds much promise for elucidating the basic mechanisms of odor, just as research with partially color-blind persons contributed to knowledge of vision.¹⁵

A member of the chemical sense group is the so-called common chemical sense, the receptors of which are undifferentiated nerve endings in the mucous membrane lining of the nasal and oral cavities. The sensation of the common chemical sense is nonspecific, that is to say, the same regardless of the stimulating substance. The common chemical sense is much less subject to adaptation or fatigue than are the other chemical senses; thus olfactory sensitivity quickly diminishes to a strong and continuing odor, whereas the common chemical sense sensation produced, for example, by ammonia or chlorine fumes does not dwindle, no matter how long the stimulus is continued. Heavy stimulation of the common chemical sense, as in the examples just cited, is unpleasant or even painful. Nevertheless, common chemical sense sensations from lighter stimulation have hedonic value, as part of the flavor of pepper, strong alcoholic beverages, and many other items of food and drink.

Although a single substance may be capable of stimulating all of the chemical senses, the threshold concentration necessary to produce a perceptible sensation may be widely different for each of the senses.¹⁶ Thus ethyl alcohol can be smelled in the air in a concentration of 0.44 per cent. But dissolved in water, ethyl alcohol must reach a level of at least 14 per cent in order to be tasted. Finally, an aqueous solution of ethyl alcohol of 25 per cent or higher concentration stimulates the common chemical sense receptors. Viewed in this wise, the sense of smell is 30 times more acute than the sense of taste. This ratio is greatly increased, however, by making the comparison with different stimuli for each sense (although purists may challenge the legitimacy of such comparisons). Thus strychnine hydrochloride, one of the most highly sapid substances, is detectable in water in a concentration of 4×10^{-5} per cent. A highly odorous substance, ethyl mercaptan, is noticeable in the air in a concentration of 3×10^{-9} per cent. On this basis, the sense of smell is 10,000 times more acute than the sense of taste.

The Evocative Sense

No other human sense has as great nostalgic power as the sense of smell.^{17, 18} The faintest whiff of a perfume characteristically affected by an absent loved one will do more to evoke an image of that person than any other memento. When the author attended M.I.T. and also lived in the Institute dormitories, the Institute grounds were frequently invaded by fumes of nitrobenzene from the nearby shoe polish factory. As a result, nothing "takes me back to Tech" more powerfully than the odor of nitrobenzene. Whenever a flavor appears to have evocative power, as when the chewing of a mint leaf conjures up the image of an open sunny meadow to one who as a child hunted wild mint on the countryside, such a flavor may usually be demonstrated to be essentially an odor, if the sensation disappears when the nose is held shut.

As the human head evolved to its present shape and thereby lost the prognathous conformation of the skull of apes, the area of the epithelium that is sensitive to odor was thereby reduced to a mere five square centimeters in each nasal cavity. For this reason alone, it is not surprising that man has a less acute sense of smell than the lower mammals. Nevertheless, as already cited, ethyl mercaptan is apparent to the human nose in a concentration of but one part in 30 billion, and numerous other substances can be smelled by man in similar dilution. Such concentrations are considerably smaller than may be detected by most of the available chemical or physical analytical methods. From these facts it becomes easy to infer what an exceedingly sensitive faculty the lower mammals must possess in their sense of smell.

An index of man's limited reliance upon the odor sense is the absence of human smell reflexes. Thus the hand is spontaneously withdrawn when a hot surface is unexpectedly touched, and this reflex action is so quick that it is accomplished before there is consciousness of a sensation of heat or pain. But any chain

Paul Farris from *Black Star*



of activity that is impelled by an odor sensation must originate consciously in the brain. Similarly, man has a poor, or at least an undeveloped, odor memory. Try to recall your previous meal. The appearance of the foods comes readily to mind, whereas any independent recollection of the odors of the foods is difficult to accomplish. Lower mammals apparently have a better odor memory, as illustrated by the ability of a dog to follow a man's trail after the dog has been acquainted with the scent of his quarry.

Relationships between chemical constitution of substances and the odor sensations they produce are not well understood. In general, however, the odor of a compound depends more upon molecular structure than upon the elements present in the molecule. But an exception to this broad rule lies in the fact that many sulfur compounds have offensive odors. In a homologous series of odorous substances, odor strength usually rises with increasing molecular weight to a certain point; above this molecular weight, odor strength progressively decreases because of decreasing volatility. But beyond a few such known relationships, all is chaos. On one hand stereoisomers, compounds that differ only in extremely subtle spatial relations within the molecule, sometimes have totally different odors.¹⁹ On the other hand, substances that differ totally in chemical constitution may have similar odors. Odor sometimes depends as much upon concentration of the stimulus as upon its nature; thus indole and ambergris have pleasant odors when dilute but are very revolting in heavy concentration.

Thousands of odors that can be clearly differentiated by the human being are known. In general, nevertheless, absolute terms for designating odors are lacking. Thus, although a taste may be described as sweet, rather than stating that it is like sugar, odors can be described only as floral, meaning like flowers, fishy, meaning like fish, and so on. Several nomenclatures for odors, and systems of odor classification, have been proposed. All of these are arbitrary, complex, and occasionally the subject of torrid controversy. Nevertheless, like any classification system, arbitrary or rational, odor nomenclatures serve a useful purpose as guideposts to those conducting a systematic study of odor phenomena.

The sense of smell has marked adaptation, or decrease in sensitivity resulting from continued exposure to a strong stimulus. Such adaptation is fortunate, as it provides the only available protection against obnoxious odors, other than the strictly limited defense of holding the nose and breathing through the mouth. Odor adaptation has, in addition, found practical application in the qualitative resolution of mixtures of odorous compounds. To accomplish such identification, the predominant component of the mixture is first recognized by odor. Then a portion of this known substance in pure form is sniffed vigorously, thus adapting the olfactory receptors until they are no longer sensitive to the odor of this particular substance. Then when the mixture is again smelled, the second most predominant component becomes apparent. Now the nose is adapted to a mixture of the two substances so far identified, and so on until the entire mixture has been explored.

Good Taste

There are four tastes, thousands of odors.^{20, 21} Since flavor is a combination of taste and odor, plus cutaneous sensations and sometimes also the common chemical sense sensation, the great complexity of flavor is apparent. Nevertheless, flavor is a fundamental practical concern of the food industry because this characteristic is the principal, and sometimes the only, criterion of acceptability of foods to the consumer. Beverage manufacturers are equally concerned with flavor. Although the act of swallowing a fluid closes off the nasal passages and thereby blocks the odor component of flavor, flavor sensations in all their ramifications are produced by the residues of a beverage that linger in the mouth after the actual act of swallowing is terminated. The major hopes for exploring flavor phenomena at present lie in separate studies of each of the several sensations that add up to make flavor. Thus, research is devoted to the odors of foods as such²² and in addition the true tastes are studied intensively.²³

As a result of the complexity of flavor and the lack of knowledge of its primary mechanisms, flavor acuity of an individual and flavor value of a food can both be determined only empirically. Therefore, such studies demand statistical interpretation.²⁴ In the food and beverage industries, the usual practice is to establish flavor standards for a product by means of broad consumer tests. The participants in such tests are required to mirror the spontaneous or untutored point of view of the average consumer. They may be drawn from nontechnical employee bodies, or may be members of the general public reached by a Gallup-poll type of procedure. Once the flavor standard for a product has thus been established, adherence to this standard is routinely checked by experts. Such experts may be individuals, like the professional tea and coffee tasters, or may be a committee or panel chosen for initial flavor acuity and then trained to make particularly fine discriminations in the product under consideration.²⁵ In general, however, training is recognized to be vastly more important than original acuity; and persons with only fair initial flavor acuity are considered to be satisfactory candidates for flavor panels. Both inherent acuity, and the ability to make flavor discriminations acquired through training, may be highly specific. For example, a skilled tea taster may be no more discriminating than an untutored layman in the flavor-testing of dairy products.

Some human beings suffer from a hereditary defect of the taste sense roughly analogous to hereditary color blindness.²⁶ To approximately 40 per cent of the Caucasian population (but 6 per cent of American Indians) the compound phenyl-thio-carbamide is tasteless, whereas to the remaining individuals this substance is intensely bitter.²⁷ The ability to taste phenyl-thio-carbamide has been found to be no index of general taste sensitivity. However, since taste blindness is inherited according to the Mendelian laws and is easily determined, this characteristic is frequently used in studies of human genetics. Furthermore taste blindness, like color blindness and anosmia, holds potential value as a starting point for basic research in sensory mechanisms.



Warden LaRoe from Black Star

As true taste is fairly well understood, a few relationships between taste and chemical constitution are known. Thus a substance must be soluble in water in order to be tasted (although many water-insoluble materials have pronounced flavors). A sour taste depends mainly upon the presence of hydrogen ions. Many salts of lower molecular weight taste salty; those of higher molecular weight, in general, bitter. But points of confusion here outnumber elements of order. Thus, substances with totally dissimilar chemical nature, such as saccharine and sugar, sometimes have like tastes.²⁸ On the other hand, minor alterations in molecular structure may radically change taste.²⁹

With regard to the effect of chemical constitution upon flavor, it is noteworthy that imitation flavors frequently bear no chemical resemblance whatsoever to the natural flavor they simulate. It is also striking that many flavor substances contain only the elements carbon, hydrogen, and oxygen. A few important flavor principles also contain sulfur or nitrogen, or both. The other approximately 90 chemical elements, surprisingly enough, rarely occur in the molecules of substances of importance in the field of flavor.

Skin Game

Would mankind be better off if bereft of the cutaneous or skin senses? Pain is a cutaneous sensation. Of all experiences, pain is the one that most strikes terror to the human heart. Although much of medical research has always been devoted to the conquest of pain, success so far is at best partial. In addition, cutaneous senses make extremely hot or cold environments unpleasant, and render tight clothing and crowded subway cars uncomfortable. But all of these irritating cutaneous sensations are in fact indispensable as safeguards against harmful effects, and therefore are necessary to self-preservation. Pain warns against trauma, not only by conscious motivation but also through instantaneous reflex action. Sensations of heat or cold discourage us from exposing ourselves

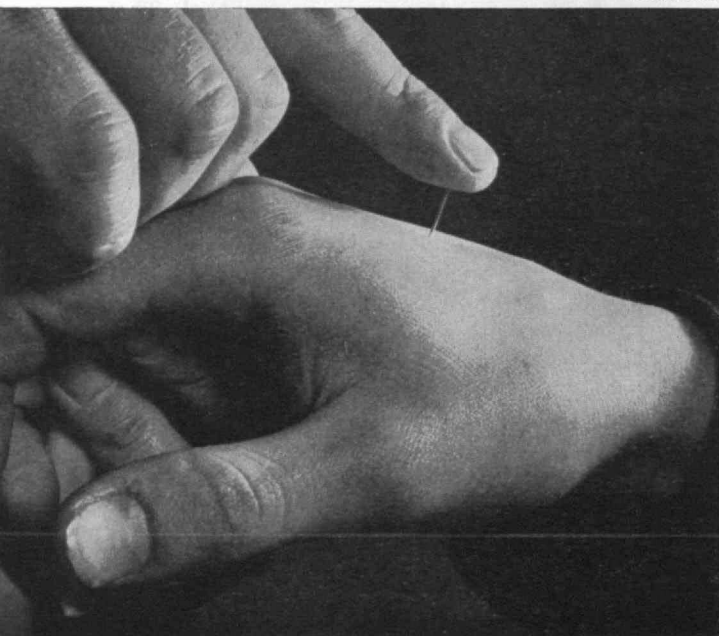
to extremes of ambient temperatures beyond those with which the temperature regulatory mechanisms of the body can cope.³⁰ The pressure sense warns when constricting clothing cuts off circulation.

But aside from such protective values the cutaneous senses also make definite positive contributions to the conduct of human affairs. Cutaneous sensations underlie the use of tools, and tool techniques are considered to have led to the development of present-day civilization. Man is the only animal able to grasp tools in the manner for maximal utility, because he possesses the unique gift of an opposable thumb. Obviously, however, more than the mere grasping of a tool is required; the implement must also be guided. It is true that the muscle and joint senses suffice for guidance of tools in rough jobs, such as the levering of a boulder with a crowbar, but for the precise handling of tools and instruments basic to modern technology, delicate manipulation made possible by the cutaneous sense of pressure is mandatory.

It might be argued here that man has now left behind him the era of predominant use of hand tools, and that today major technological tasks are accomplished by machine tools. This is true, but nevertheless cutaneous sensations are still the means for making the fine adjustments involved in the operation of machine tools.

But even in the direct observation of phenomena, the cutaneous senses come into play in ways that are sometimes overlooked. Thus it may be noted that the mechanic engaged in removing dents from an automobile fender, and the physician scrutinizing the texture of a patient's skin, both supplement their visual impressions of the surface with which they are concerned by running the palms of their hands over it. Physicians, in fact, make a number of diagnostic observations via their cutaneous senses; for example, condition of the abdominal viscera examined by palpation, internal fluid pressure of the eyeball judged by resistance to fingertip pressure, and even surface temperature differential between the ankle and knee as an index of diminished circulation in the leg.

Black Star



How to Make Sense

Sensory impressions are taken in, from the environment, via the specialized receptors of the several senses. Next, these impressions are carried over nerve channels to the brain and contiguous central nervous system structures. Then, finally, the central nervous system interprets and integrates the sensory impulses, and utilizes them as stimuli to action. Therefore loss of sensory acuity from injury, as by trauma or disease, can occur in any one of three foci: in the sensory receptors; in the nerves that convey impulses from the receptors to the central nervous system; or in the central nervous system itself. Some perspective of the scope of the middle one of these three elements may be gained from the proven fact that a given nerve channel can carry only a single type of impulse. This impulse may vary as to intensity, but not as to nature. Considering now the wide variety of sensory impressions that this article has set forth, the tremendous intricacy of the nervous network becomes apparent.

If one of the trinity of receptor, nerve channel, and brain had to be singled out as the most important element in sensory perception, it would doubtless be the last of these. For example, we have seen that the only means of selectivity in hearing is inhibition or concentration by the brain. It has further been shown that the skill of flavor judges depends much more upon training (accomplished by the central nervous system) than upon initial inherent acuity (a measure of receptor acuteness). A related example of the primary importance of the central pathways in sensory perception may be drawn from blind persons. At first blush, the blind appear to have extraordinary touch sensitivity, as evidenced by ability to read Braille and to do exacting manual tasks entirely by feeling with the fingers. Blind persons also seem to have exceptionally acute hearing and olfactory senses, in that they are aware of environmental sounds and smells that are overlooked by sighted persons. But objective tests of the touch, hearing, and odor acuity of blind persons show that they do not gain in these senses when they lose their sight. Rather the blind improve the contribution of their central nervous system, because loss of sight promotes better conscious concentration on the remaining senses.

Support of a different nature of the paramount importance of the central pathways may be adduced from an animal experiment.³¹ Nerve impulses are accompanied by electrical phenomena, and hence passage of impulses along a nerve may be detected by means of electrical leads. When the auditory nerve of a cat isolated in a soundproof room is thus tapped, and the nerve impulses so sidetracked are transformed into sound and amplified by means of standard electronic equipment, words addressed to the animal emerge from the loudspeaker as intelligible speech. This demonstration shows that the lower animal is able to receive human speech through its ear mechanisms, and also to transmit the resultant impulses along nerve channels. But speech is essentially meaningless to the central nervous system of the cat. Therefore it is this last phase alone of sensory ability that sets man apart from the lower animal.

(Continued on page 106)

The Engineer and Security

*The Only Real Security Lies in Developing Our Ability
to Cope with the Unexpected and the Unpredictable
through Exercise of Originality and Ingenuity*

By LUIS DE FLOREZ

THERE was a time when the world produced huge, powerful creatures who owed their existence and survival to sheer strength and personal armament. In the quest for food and the demand for living space, they were supreme in their time; yet all that remains of these formidable denizens today are the fossils that tell us of their existence in history.

In our present age we find the same inexorable laws of survival, the same struggle for a place under the sun, and more competition than ever before in the same world of limited food and infinite appetites. We find the same need for might to overcome man's enemies. Yet man, by comparison a physical weakling, has become lord of creation, and his species overruns the earth, tolerating the existence of other beings or employing them to his use. Why?

We all know the answer which, basically, is simple enough. It was, by some mysterious process, the development of the intellect in the *genus homo* which brought him not only the ability to survive, but the power to become undisputed master of the world with only one real adversary — himself. Man is master of the lion and of the germ — or at least many germs: he has harnessed the world's energy to his use; he has conquered the air and the sea for transport and the ether for communication: he has performed miracles in biology and chemistry to enhance his food and combat disease: he has ferreted out the secret of atomic energy and, even now, he is casting his eyes toward the exploration of interplanetary space.

All this world of wonders and adventure, with even greater promise in the years to come, has been wrought by the development of the intellect in man. Our precious heritage is to use or misuse, to cultivate or to neglect, to enrich or destroy the world — in short, to survive or perish — through further developments of human intellect in the broad sense of the term. In our day and age when the struggle for survival is centered within mankind itself, engineers are perhaps more fortunate (and for this reason have greater responsibilities) than most of our fellow men. In the study of nature's laws, we have discovered and have come to understand the reasons for things which remain a mystery to so many others. We have been given a glimpse of reality and the opportunity of planning our actions in the world of things as they are. By virtue of our training and knowledge, we have acquired the best of preparation for life's great adventure and for the changes which are to come. It lies with us, individually, to choose between the blazing of new trails and the following of beaten paths, insulated

by routine and accompanied by boredom. In our quest for an interesting and fruitful career we might well ask ourselves: "What constitutes an engineer worthy of the name? What are his attributes and what is his role in our society?"

A conventional definition might be that an engineer is one who has studied the sciences and applies the knowledge gained to the solution of the problems of industry. He has been described, somewhat less formally, as a man who can do for \$1.00 what anyone can do for \$2.00 (or for that matter what any government agency can do for \$10.00).

It is doubtful whether we can, or whether we should even try, to concoct a satisfactory, or adequate, definition in a few words, no matter how well chosen they may be; for the engineering profession encompasses virtually every phase of human activity and requires men of widely different characteristics and interests.

We do know that an engineer must understand and accept the fundamental laws of nature; that without technical knowledge in his field and without acumen to apply his knowledge he would be useless; that without common sense and some measure of philosophy to guide him he might prove to be a menace. We know that he has just as much need for a sense of humor and a knowledge of human nature as anyone else in this world, that failures will come to him, unexpectedly and unwelcomed, and that such failures do not spell defeat, but are a part of the ingredients of successful accomplishment.

Our technical schools and colleges teach engineering subjects and teach them well, but their graduates are not necessarily engineers, in the real sense of the word, merely because they have completed prescribed courses. Every effort is made to teach students the principles of engineering and some of their applications, and to illustrate current methods and procedures; but it is neither possible, nor even desirable, to attempt to drill a student in sufficient detail to prepare him for all the problems and all circumstances which he will meet in his future career. If, by any stretch of the imagination, such a thing were possible, the result would surely turn out to be some sort of animated encyclopedia, with a long white beard, operating from a wheel-and-wicker chassis.

As it is, the growing volume of technical material which must be taught in four years, together with the economic pressure to prepare graduates to jump into specific jobs straight from school, tends to keep a student so busy absorbing technical knowledge that he has little time left for original thinking.

To conserve time in the crowded curriculum, it is often necessary to resort to the expediency of presenting students with standard problems and of discussing their solutions, instead of giving them time to work out the answers for themselves. Instruction of this sort illustrates and teaches the method very effectively but we must always remember that it does not tend to develop the type of thinking which must color our work in later life and provide the basis for creative accomplishment, nor does it promote the exercise of mental functions in the manner which they will be called upon to perform in our life's work.

Such practice is somewhat analogous to shooting clay pigeons as a preparation for actual bird shooting in the field. Trapshooting is effective in teaching the handling of the gun and how to hit moving objects, but we cannot expect the mechanical skill we learn in this way to make us equally expert gunners under field conditions. Instead of stereotyped targets as in the first case, we are now confronted with targets of independent initiative over which we exercise no control and whose action and vagaries we cannot predict; whereas the objective in the first case is to make a score, in the second case it is to bring home the proverbial bacon.

Methods, no matter how well taught, are not an end in themselves; they are but tools which must be adjusted and intelligently directed. To be successful as an engineer one must constantly exercise the characteristic which has been most responsible for the progress of mankind from the Stone Age to our present state. The quality which we most need to solve the formidable problems of the future is ingenuity.

There are some who believe that the exercise of ingenuity is the prerogative of the inventor. If that be true, then all of us who survive in competition must be inventors of something sufficiently important to keep us alive. In actual practice, for which we prepare in technical training, the problems which confront us are seldom clear-cut or subject to solution by mere routine procedure. We must seek not only *a* solution, but the *best* solution which requires exercising our ingenuity as well as all our knowledge. It is the constant possibility — the constant hope — of finding new and better solutions which makes the engineering profession interesting and exciting. To do things simply and with less effort, to conserve energy and materials, are goals which are not attained by mere recourse to handbooks, slide rules, or reliance on common practice. We must keep our wits just as sharp in engineering as we would in proverbial horse trading.

There was a man once who calculated he needed a 50-cubic yard concrete foundation under a support and proceeded to blast out some 50 cubic yards of solid rock to put it in. He was a graduate of one of our best engineering schools, but he was not an engineer. He was merely a *de luxe* model robot.

Contrast this mentality with that of another man who, as a boy on the farm, found himself confronted with what was probably his first engineering problem — the shooting and disposing of an old and ailing horse. None of the farm hands could agree on how they would transport the horse, when dead, from the barnyard to a prepared pit for burial. The boy solved the problem by leading the horse gently to a position

just the right distance from the pit and toppling him over into it just as he fired the merciful shot. He had the mentality of an engineer and later became a distinguished figure in the engineering world — manager of Colts at 25 and director of the world-famed *Fabrique Nationale* in Belgium before the age of 30. He was the man who as agent for Cramps, shipbuilders, sold a fleet of torpedo boats to the Russians during the Russo-Japanese War. To effect the sale, he had to devise a way of getting the craft to the Far East. He arranged to build them in short sections, put them on flat cars, and ship them by rail across Siberia to Port Arthur. When the Russians argued that this would not work, as the sections in their cradles would not pass through the tunnels, he turned the sections keel up, and they just cleared through. He also gained fame as the man who introduced the Wright brothers' airplane to the world, as their agent in Europe. When the Wrights found difficulty in financing and selling their brain child in their own country, it was he who, by skillful management and vision, convinced the skeptical world that the heavier-than-air machine was a reality by dramatic demonstrations. He was a man who never received an engineering degree: he had to acquire his technical knowledge the hard way. Nevertheless, he learned to use all of his fertile intellect and give rein to his ingenuity and resourcefulness to become an engineer in the best sense of the word.

Just as "the habit does not make the monk," neither does the certificate make the engineer. Some spark of originality, some creative spirit, must be added to technical training to achieve the result. In our daily lives and pursuits, we have but to look about us to find ourselves surrounded by products of human ingenuity — devices which have resulted from the most subtle and clever thinking. The familiar and now prosaic household objects, such as the telephone, radio sets, refrigerators, pressure cookers, vacuum cleaners, electric shavers, and virtually everything we use have some original feature (some touch of the unusual) which gives them a preferred place in competitive development.

Power plants, automobiles, aircraft, cash registers, business machines, tunnels, bridges, and, in fact, all the extraordinary fruits of modern engineering, at our every hand, have resulted from creative thinking based on original concepts, using past experience and past accomplishments only as guides to keep within the fundamental physical laws. What we know of the universe, and especially our concepts beyond earthly range, has come from the ingenious application of mathematics and physics. What we know of atomic structure and forces has come from incredible ingenuity in developing methods by which we can observe, measure, and control the action of infinitesimal and unseen particles of matter.

If ingenuity plays such an important part in engineering, we might ask ourselves: Why is it not taught in engineering schools? The answer is that ingenuity cannot be taught as such. It can, however, be developed, it can be encouraged, it can be stimulated. Some people come by it naturally; others must have it awakened in them by competition and unsatisfied desire. It is an intangible quality of mind which will guide us around obstacles and lead us to our objective

in new and unexpected ways. Ingenuity involves an independence of thought which seeks to do things differently, and constantly proves that the well-beaten path is not necessarily the right one. When things are done differently, something new seems to be added to man's knowledge or convenience.

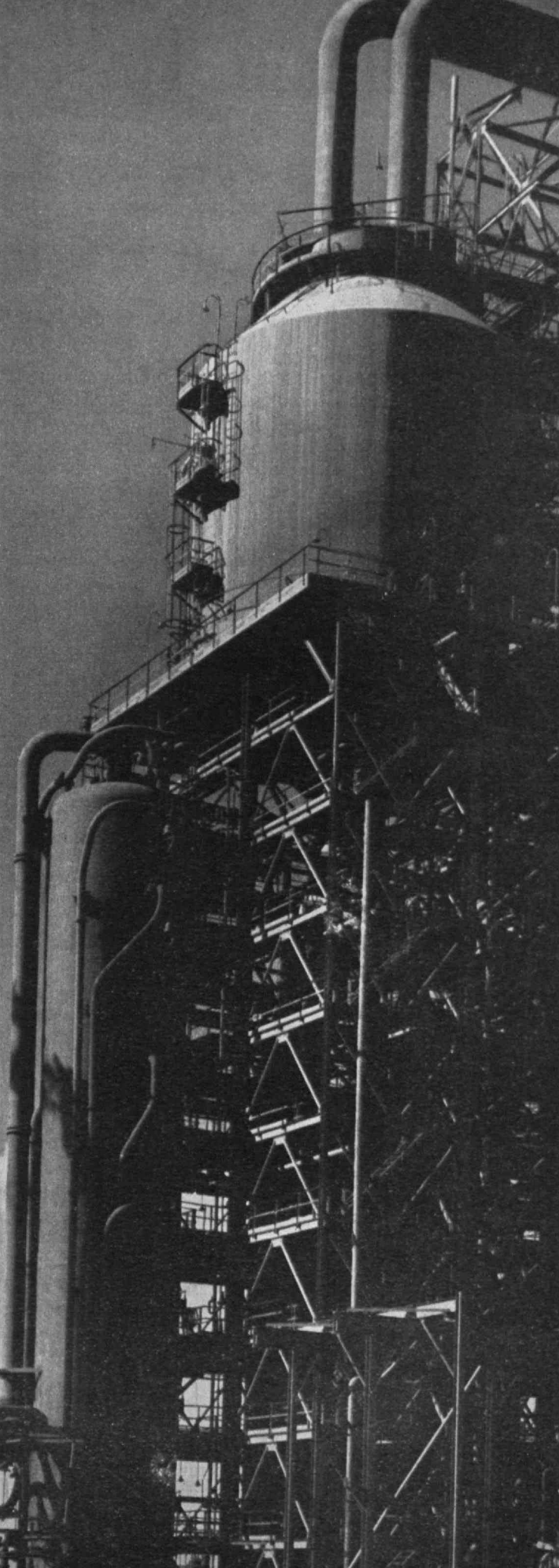
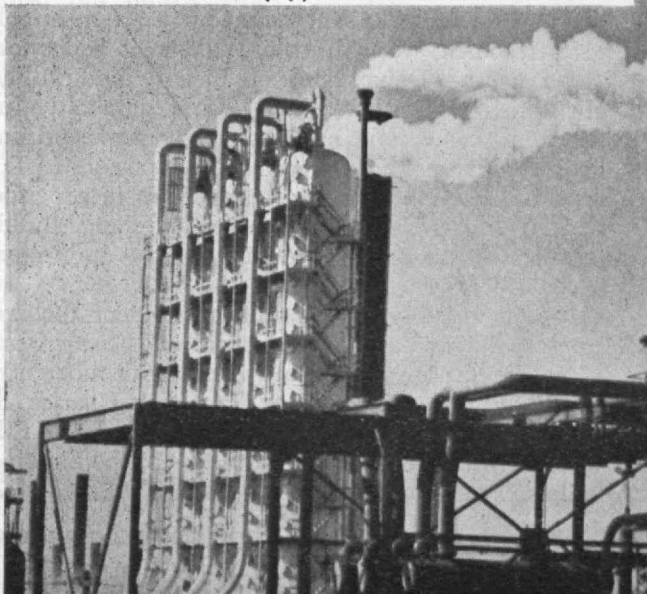
Convention in design and tradition in practice have a way of freezing or channeling thought so that we tend to continue using the same old method, building the same kind of machines until someone starts an entirely new tack. By habitually scheming to do things differently, we keep our minds open and flexible, ready to progress to new and better ways when the opportunity arises. Thus, someday, we may be fortunate enough to be the one to start the new trend, and we may be the one to be thanked in the future.

In the early days of petroleum refining, it was common practice to have the controls of a process located on individual units, such as the pumps, furnaces, and coolers, together with gauges and dials to indicate their individual performance. To operate such a process, one had to keep on the move, from one place to another, and never had opportunity to really be able to co-ordinate the operation as a whole. Instead of sending the operator scurrying around to the controls, why could not the controls be brought to the operator? There were objections, of course. The operators should watch individual operating units for failure, the operators should be kept on the move to keep them alert, and other equally hollow arguments advanced by the satisfied.

At the first opportunity, I built a cracking plant with central control, bringing all the operating controls and pressure and temperature readings into one room and grouping them on a panel. The new job of control man, to operate the process as a whole and to be responsible for the over-all result rather than the functioning of any individual unit, was created in 1916 when central control was first applied in oil-refinery operation. The then new idea worked so well that today central control is common practice in refinery design, as it is in other industries. This rather basic change required no invention but merely a much needed departure from tradition.

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Carsini from Standard Oil Co. (N.J.)



William T. Sedgwick, Biologist

*One of Technology's Great and Inspiring Teachers Was
Also an Author and Orator of Note, and a National
Leader in the Field of Public Health*

By JAMES A. TOBEY

ABOUT 40 years ago it was the edifying custom at M.I.T. to assemble the freshmen into Huntington Hall, in the old Rogers Building on Boylston Street, and expose them to more or less fervid talks on the advantages and allurements of the several courses then available at the Institute. These somewhat cursory descriptions of 14 different branches of engineering and science were intended to assist a teen-age student, perhaps with an immature mind, to make an intelligent decision as to the course of instruction he would follow at the Institute. It is not surprising that there was some subsequent falling by the wayside.

Since engineers and most of the mentors of engineering were then, are now, and probably always will be among the least articulate and the least eloquent of professional groups, these lectures usually were more prosaic than inspiring. They were, of course, valuable as factual presentations, and occasionally they were interesting, but only rarely were they exciting or stimulating. There was, however, one notable and outstanding exception.

When the seventh in this series of discourses was to be given in the year 1911, there strode briskly upon the stage a rather tall, handsome, and distinguished-looking individual in his middle fifties, plainly but neatly dressed, with a couple of gold keys dangling from his watch chain. His rather luxuriant gray hair was parted in the middle, he wore gold-rimmed spectacles, and his visage was adorned with a drooping gray moustache. To the callow youth of his audience he had the appearance of another eminent and benevolent professor who might be expected to contribute to the customary tedium, and then pass and be forgotten like the rest. It was rumored, too, that he was to talk that day on the unaesthetic subject of sewage disposal.

Callow youth was in for a pleasant and startling surprise. From the moment that this gentleman began to speak, his uneasy audience started to sit up and take notice. By the time that he was well launched in his talk, they were literally sitting on the edges of their chairs. Not a foot shuffled in this somber hall where the feet of restless students had scraped and shuffled since Huntington Hall was first used; not a cough disturbed the rich, smooth flow of words. Here, at last, was something worth listening to. Here indeed was a speech that was a masterpiece both of form and substance and an inspiration to all who heard it.

As one of those who sat enthralled on that occasion so many years ago, I do not, of course, remember the

precise words uttered by the speaker. They were, however, something like the following quotation, taken from a published contemporary address:

Human life was probably never more interesting or more exciting than it is today. Those of us who were born in the middle of the last century have been fortunate, for we have witnessed the conquests of Darwinism, and the genesis of the theory of evolution, the rise of anthropology, and the victories of the germ theory of disease. Think of it for a moment—the theory of gravitation, the theory of evolution, the theory of infection! What a privilege to have lived while these were debated and finally accepted as the basal theories of science.

And yet, those who are now coming on the stage are likely to enjoy lives even more interesting, for not only will new knowledge arise and new theories press forward, but the application of the knowledge already at hand will, of itself, suffice for many lifetimes. These applications may be summed up under the general heading of a new physiology or a new behavior of mankind. And in this work the biologists and sanitary engineers are clearly to be the experts and guides. It behooves us therefore to lay broad, deep, and strong the foundations upon which these newer activities must be built, and it is for this purpose that we here at the Institute are working together, today and tomorrow.

At the conclusion of this remarkable address the spellbound audience came out of its trance and burst into loud and prolonged applause. The students had not begun, as usual, to gather up their lares and penates before the lecture was over, so that they could escape immediately from the room. This time they sat and continued the ovation for several minutes in obvious enthusiasm.

The recipient of this well-merited tribute from one of the most critical of all audiences, a group of college freshmen, was Professor William T. Sedgwick, Head of the Department of Biology and Public Health. Ever since 1883, when he first came to the Institute as an assistant professor of the new and unfledged science of biology, he had been one of M.I.T.'s most unforgettable characters, and this in a period when the dingy old Rogers, Walker, and Pierce Buildings in Boston were replete with colorful and unforgettable characters.

Who could forget the brilliant President Richard Cockburn Maclaurin, the dignified and hearty Dean Alfred E. Burton, the patently cynical but inherently kindly Professor Arlo Bates, Professor Charles R. Cross, '70, and his little mannerisms, Professor Edward F. Miller, '86, and his narratives of the bursting boilers, Professor Charles B. ("Buller") Breed, '97,

Ralph Adams Cram and his pipe, the black-bearded Frank M. Gracey of drawing, and the white-bearded John Ritchie, Jr., of public relations?

Among these, and many others, Professor Sedgwick was distinguished not merely as an orator, but as a human person. In addition to his unique ability as a speaker, he was an exceptionally able and inspiring teacher, a national leader in the developing field of public health, America's foremost epidemiologist or sanitary detective, an author of note, and a zealous and devoted public servant. Most of all, he was both a gentleman and a scholar.

In an era when the art of gentility was rapidly becoming a lost art, Professor Sedgwick was one of the few who were entitled to the honorable title of gentleman because he was invariably courteous and considerate, patient and reasonable, sympathetic and helpful, gracious and honorable. He seemed never to lose his poise; he did not get irritable or sarcastic; and he was not contentious or truculent. On occasion he could be stern and he was often militant in a good cause, but in all his dealings with others he was strictly fair and impartial. These are qualities which endear a man to his students as well as to the public in general.

Once when I was floundering in a chemical laboratory, hopelessly confused by some minor but, to me, abstruse problem, a dour assistant professor came strolling by. He watched my struggles for a few moments, remarked casually, "You don't seem to understand this, do you?" and walked away. Now, Professor Sedgwick might have made the same remark, but he most certainly would have added, "Let me help you." He was one of those who realized that the function of a

teacher is to teach. He also appreciated the fact that instruction consists not merely of cramming a mind full of facts, but in the development of that mind to utilize the facts in a sensible and efficacious manner, and to think. Professor George F. Swain of the Civil Engineering Department had the same peculiar idea, but unlike Sedgwick he often became impatient and sarcastic about it.

Professor Sedgwick was born in Connecticut in 1855 and graduated from the Sheffield Scientific School at Yale in 1877. He then entered the Yale Medical School, completing one year of dull lectures in a course devoid of any laboratory work or practical demonstrations. Thoroughly dissatisfied with this type of instruction he

left at the end of his second year, having happily obtained a fellowship in biology at the newly established and brilliantly administered Johns Hopkins University in Baltimore. There he received his Ph.D. in 1881, a much more honorable degree at that time than the M.D. which, in the words of President Eliot of Harvard, usually was awarded to "a rougher class of young men than any professional students of similar age." Charles W. Eliot, it may be recalled, was a professor of chemistry at M.I.T. when he was appointed president of Harvard University in 1869 at the tender age of 35.

After serving for two years — first as assistant and later as associate in biology — at Johns Hopkins under the aegis of the unforgettable H. Newell Martin, Dr. Sedgwick was summoned to M.I.T. by one of his former teachers, General Francis A. Walker, its President, and installed in a cubbyhole in the old Rogers Building as assistant professor of biology. His first plan was to emphasize the courses in the biological sciences as a desirable prerequisite to the study of medicine, a study which was undertaken in those days without any preliminary preparation whatever. The idea was good, but the prospective physicians were not in the least attracted to it: Instead of flocking to such a worthwhile course, they stayed away in droves. With much prodding from the indefatigable President Eliot, medical education finally was reformed in this country, although not completely until well after the turn of the century. Today it is probably the best in the world, but until about 1910 it was frequently inadequate and inept.

Although disappointed by the indifference of the medical students of the times, Professor Sedgwick at once turned to other fertile fields of endeavor and proceeded to make M.I.T. the leader in environmental sanitation and public health in the United States. In 1888 he was appointed consulting biologist to the Massachusetts State Board of Health, organized in 1869 as the first state board of health in the country but in the eighties concerned more with lunacy and charity than with hygiene and sanitation. An experiment station for investigations of improved methods of sewage disposal and water purification was established by the State Board of Health at Lawrence, Mass., under the sponsorship of an eminent hydraulic engineer, Hiram F. Mills, and with Sedgwick and Professor Thomas M. (Continued on page 112)



William T. Sedgwick

Head of the Institute's Department of Biology and Public Health, 1907-1921

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

Corporation Deliberation

National Interest Guides Policy of Keeping M.I.T. Facilities Intact and in a State of Readiness, Reports President Killian.

THE uncertain tension in international affairs, with the cold war already having been precipitously warmed up in Korea and Indo-China, was reflected in the annual report of James R. Killian, Jr., '26, President, to the M.I.T. Corporation at its meeting in Cambridge on October 2. The danger of over-committing M.I.T. Faculty and physical facilities prematurely was clearly recognized by President Killian who reported that the Institute would continue its normal functions of education and research as the best method of contributing to national security under existing conditions. By such a policy, Dr. Killian stated, the Institute would best be in a position of readiness to assume high-priority assignments in the interests of national defense when, and if, aggression cannot be stemmed by men of reason working toward international peace. Said President Killian in his report:

No educator contemplating the present world scene and its inherent hazard of another catastrophic war can fail to be deeply disturbed and perplexed by the difficulties of setting any true course. The half-light in which we live obscures the road ahead and dims the clarity of any policy or long-range plan. It is like driving in the twilight: the dim light makes it hard to see and the headlights are much less effective than they are in total darkness.

In presenting my annual report at this time, I do so with the awareness that our programs and our planning at the Institute are subject to change without notice, and that the only policy that we can be certain is sound is to keep ourselves in a state of readiness to serve our nation, which must now mobilize its might as the surest way to prevent a war as well as to maintain the essential condition for our defense. I can report to you with confidence that all groups at the Institute share in this feeling of responsibility. Underlying all of our policies and planning is a clear commitment to be guided by the national interests and not by self-interest.

Keeping ourselves in a state of readiness means that we should keep our program as flexible as possible. We should try to avoid commitments that might later prove to have low priority. We are trying to hold our staff as nearly intact as possible so that they may be effective as a team in carrying on our present program and in attacking any emergency programs that we may later be asked to undertake when the need might be much greater.

Educational Policies. Urging that the United States maintain its educational facilities in as vigorous a condition as possible, President Killian clearly recognized that we should be prepared to drop normal op-

erations and mobilize completely if called by national policy to do so. The past history of the United States points to the wisdom of such a policy. Recalling this country's policy in the past, Dr. Killian said:

During World War II, we in the United States ran a risk in largely discontinuing education for professions essential to defense — a risk that both England and Russia refused to take even in the face of invasion. I am hopeful that the present studies of the National Security Resources Board will result in a courageous man-power policy that gives adequate weight to such considerations and that charts a clear emergency course for our universities and their students to follow. Whatever this policy may be, the universities can and will adjust to it. Meanwhile schools training men for such essential professions as science, engineering, and medicine have a responsibility to maintain a high degree of educational effectiveness.

The future of our country also depends upon our holding fast as long as possible to those aspects of education which inculcate a sense of the first-rate as expressed in such imponderables as good taste, high standards, and high ideals. It is all too easy to think of these as nonessential.

Research Policy. The mobilization of scientific resources today for national welfare is on a much firmer basis than was the case prior to World War II. Large numbers of scientists are now familiar with military problems and requirements, and effective liaison between military and research groups is currently in effect. This state of affairs is an important factor in determining M.I.T.'s policy, and with these considerations in mind, President Killian suggested:

... that M.I.T. should continue its basic educational and research activities as uninterrupted as possible, especially since they bear directly on national defense. We can make our maximum contribution to national security by doing thoroughly what we already have undertaken. As you know, we are already carrying a heavy load of research and advisory activity in connection with national defense. We are prepared to continue this with vigor, or, as the need may dictate, to expedite and to expand it.

In addition to research they conduct on campus for the government, members of our staff have been serving as consultants to government on a wide variety of problems. The magnitude of this service is quite beyond anything that took place prior to World War II, and provides another illustration of the resources of man power and ideas which are present in this institution.

During the past several years an interesting new consultative technique has been developed and employed here and elsewhere to help the government solve complex problems. Let me cite a specific example. Two summers ago the Atomic Energy Commission needed expert counsel and imaginative consideration of a highly technical and strategically important problem. Instead of setting up a research laboratory or a new research group to deal with it, A.E.C. representatives came to M.I.T. and asked if we would assemble a representative group of first-rate scientists and

engineers to spend three or four months intensively studying this problem for the purpose of appraising present ideas and charting a future course of action. The group was to undertake no laboratory research. It was to serve rather as a panel of experts and was to be so briefed and organized that they could be uninhibited in their thinking about the problem. This group, which came to be known as the Lexington Project, was organized under these conditions. A group of first-rate men from both industry and a wide variety of educational institutions was brought together, and spent the summer living with this problem and thinking about it in a free-wheeling manner. The results were good, and the A.E.C. had in its hands an evaluation and a program which it hardly could have obtained in any other manner.

So successful was Project Lexington that its formula has now been duplicated several times with new groups assembled to study problems of other government departments. In each instance the results have been highly valuable. A new order of civilian ingenuity and imagination has been brought to bear upon military problems, and the government has had the benefit of some of the best minds in the nation. It has had the benefit of these minds, and this is important, without unduly disturbing their normal educational or industrial activities. The groups have all been assembled for relatively short periods of time, and a deadline set beyond which they would not go. The men in the groups then dispersed and went back to their normal activities.

I cite this type of assistance to our government to illustrate two advantages of the plan. In the first place, it provides a technique whereby our government can have access to the best thinking of our professional people without uprooting them for long periods of time. By bringing them together in these *ad hoc* study groups, the government is able to get sound counsel on complex technical questions. Furthermore, it can get broad thinking about systems, instead of limited thinking about components. Because M.I.T. has a versatile and integrated team, it has unusual competence to do comprehensive "systems" research, and many of our staff feel that this is one of the most important contributions that we can make to defense.

The second advantage of this type of project is that the men who are participating in them can lend their services to the government without upsetting unduly the programs of the institutions to which they are permanently attached, or for that matter without unduly disrupting the professional activities of the men themselves. Still another advantage of this kind of arrangement is that it builds a cadre of informed professional people in this country who know what the government's technical problems are in certain areas that otherwise would be kept from them, and therefore who are more readily available further to assist the government if an emergency makes it necessary.

Government- and industry-sponsored research projects, together with projects such as the one I have just described, are means by which we can make a direct contribution to the national security and at the same time continue to perform our basic and fundamental jobs of educating a steady stream of young people and of advancing the boundaries of knowledge.

Year in Review. In reviewing activities at M.I.T. during the period between October, 1949, and October, 1950, a good portion of the President's Report dealt with the report of the Faculty Committee on Educational Survey, which was summarized in the November, 1950, issue of *The Review*, and, for this reason, will be omitted here. The Faculty and the Administration are in accord that M.I.T. must have superlatively good undergraduate teaching—the best

that can be found. In accordance with the recommendations of the survey, the Faculty has appointed a Committee on Undergraduate Policy, with Professor Walter G. Whitman, '17, of the Department of Chemical Engineering, as chairman. This important new committee has started its work by a restudy of the first-year curriculum and the integration of those Faculty groups responsible for undergraduate instruction.

The President's Report contained a review of the increased activity of the Summer School, which is omitted here since the substance of this program was included in this publication last month.

In a review of residential facilities which are being expanded for students and staff members, the inauguration of new facilities for education and research, progress of the Development Program, and special needs of M.I.T., the president's annual message recorded the following:

Towards a Residential College. One of the most important additions to our facilities during the year was made through purchase of the Riverside Apartment Hotel on Memorial Drive. We have started this summer converting this building to a dormitory that will ultimately house some 500 students. This, together with the new dormitory which was finished last year, gives us within a year nearly 1,000 new accommodations for students, more than doubling our permanent dormitory facilities. This brings us closer to our objective of having dormitories adequate to house those students who wish to live in them.

When the Riverside Apartments are in full use as a dormitory, we will be able to provide housing for approximately two-thirds of our student body, if we include the temporary barracks, Westgate, Westgate West, and the fraternity houses. This additional housing means a notable improvement in our environment and in our opportunity to provide a more rounded educational program and community life for our student body.

With this additional housing available we were able this fall to take care of all freshmen who wished to live in dormitories. By gathering a large proportion of our freshman class together on the campus, we can better promote adjustment and morale, and strengthen the educational influence of our community life.

New Facilities. Blueprint preparation, ground breaking, and dedication ceremonies have continued to mark the progress of our Development Program. The Hydrodynamics Laboratory and Towing Tank, begun last year, are now in use. The 12,000,000-electron-volt electrostatic generator has been substantially completed. Dedication of the Charles Hayden Memorial Library took place in May . . .

Construction was started this summer on the Sloan Metal Processing Laboratory. This will provide much needed new facilities for education and research in metallurgical science as applied to basic manufacturing processes. Named in honor of Alfred P. Sloan, Jr., '95, whose generosity has made it possible, this new building will enable the interdepartmental metal processing laboratory to enjoy superb working facilities.

A new biology and food technology laboratory, to be called the John Thompson Dorrance Laboratory, in honor of the late John Thompson Dorrance, '95, has been made possible by a grant from the Campbell Soup Company, and the design of this structure is nearing completion. It is our hope that we will be able to start construction on this important addition to our science facilities this year . . .

Of major importance to the development of our college community and our broader educational program will be the auditorium and chapel for which funds have now been received from the Kresge Foundation. The addition of an



M.I.T. Photos

Most prominent feature of the recently dedicated Boston Stein Club Map Room is the six-foot orographical globe made in England for the Institute, and presented by Harry H. Young, '91. The globe is equipped with a plastic meridian indicator and is fully color coded to indicate sea depths and altitudes of significant land masses. Present at the dedication ceremonies were (left to right): Vernon D. Tate, Director of Libraries at M.I.T., Myer L. Alpert, '22, President of the Boston Stein Club, Mr. Young, and Oscar H. Horovitz, '22, Club Vice-president.



General view (left) of the Boston Stein Club Map Room in the recently completed Charles Hayden Memorial Library during ceremonies on October 24 when the map room was dedicated. Typical examples of maps and atlases which are available in this well-equipped room may be seen on the walls and the tables.

auditorium and chapel to our campus will carry M.I.T. another long step forward in its program of increasing emphasis on community, cultural, and spiritual activities.

The community life of the campus has also been aided by the addition this past year of a new student-faculty room, where students and Faculty can meet under informal conditions. This room was made possible by the Development Program, and designed by one of the student members of the Student-Faculty Committee, so that its purpose of stimulating a community spirit has been served from the very start.

The student-faculty room is for general use. In addition, we are slowly providing much-needed new rooms for seminars and extracurricular meetings where students and Faculty can get together in attractive surroundings. This June a dedication tea marked the opening of the Dugald Caleb Jackson Room, a room of modern design, beautifully equipped to serve for seminars, conferences, and special meetings of the Department of Electrical Engineering. I might mention here that the new Metal Processing Laboratory is to have a penthouse "common room" above the fourth floor, for the use of all students and Faculty members. Equipped with a complete kitchen and dining facilities, the room will make possible social occasions which will supplement and enrich the formal contacts of the laboratory and classroom.

The progress we have made this last year in adding to our facilities brings us to within sight of reaching our goal of replacing inadequate facilities with modern ones, and of exploiting new scientific and technological opportunities. An outstanding need yet to be filled is for a new build-

(Continued on page 118)

Cartographic Library Dedicated

IN the present tumultuous world an accurate knowledge of geography is essential to an understanding of the course of events. In the new Charles Hayden Memorial Library, dedicated in May, 1950, a choice ground-floor location overlooking the Charles River was selected for a new kind of map library intended to provide students, Faculty, and research workers with superb facilities for the use of maps as a medium of world understanding, and at the same time to contain all needed resources for conventional study which would involve maps.

In dedication ceremonies on October 24, Vernon D. Tate, Director of Libraries, announced that the new map room was presented to M.I.T. by members of the Boston Stein Club, which is composed of a group of active Institute Alumni. The most prominent feature of the room is a large orographical globe which was especially manufactured in England for the Institute. The globe, which is six feet in diameter, is equipped with a mechanism which causes it to make a rotation every two and one-half minutes. The horizontal scale is 114 miles to the inch, while the vertical scale of the relief is 30,000 feet to the inch. The globe is equipped with a plastic meridian indicator and is fully color coded to indicate sea depths and mountain ranges.

The globe is a gift to the library from Harry H. Young, '91, whose extensive personal collection of

American globes and library on cartography and globe making, have been presented to the Institute's cartographic collections. Another major feature of the map room is a large table, measuring 9 by 20 feet, to afford ample space for the consultation of several maps at a time. Storage for over 100,000 maps is provided in cabinets of the latest type. An enclosed case for atlases, gazetteers, books, and periodicals relating to cartography, a light table and various other special items of furniture, together with cork-faced walls and a slot for hanging large wall maps, add to the versatility of the room.

The basic Institute map collection, including two copies of the depository set of 25,000 U.S. Army Map Service maps, together with extensive collections of other government maps, miscellaneous holdings and ancient maps, are being placed on file for ready reference. In addition to its function as a research and working area, seminars, discussion groups, and on occasion, classes will meet in the Boston Stein Club Map Room where the great orographical globe and auxiliary visual aids will be used to augment the usual teaching facilities.

Architectural Leadership

PIETRO BELLUSCHI of Portland, Ore., who has gained recognition as one of this country's foremost architects, has been appointed dean of the School of Architecture and Planning at the Institute, according to President Killian. Technology's new dean will succeed Professor William W. Wurster, '17, who held the position from 1944 until May, 1950.

Dr. Belluschi will join the Faculty of the Institute on January 1, 1951, but will continue his architectural practice in Oregon until all current and pending contracts are terminated. During this period the oldest associates of the firm of Pietro Belluschi, Architect, will form a new partnership to be known as Smith, Richardson, Kotchik, and Allen. The new firm will assist Dr. Belluschi in carrying out his old contracts and will assume new ones on its own behalf. Dr. Belluschi will act as the firm's consultant.

The new dean was born in Ancona, Italy, in 1899, and was educated at the University of Rome, from which he holds the degree of doctor of architectural engineering. He came to the United States in 1923 and carried on advanced studies at Cornell University before starting his career in Portland in 1925. It was then that he joined the architectural staff of one of the oldest and largest architectural firms in the Northwest, which was established in 1906 by the late A. E. Doyle. The name of the firm was changed to that of Pietro Belluschi, Architect, in 1943. Together, the two firms have been responsible for the design of approximately 1,300 buildings, including many of the largest structures in the city of Portland. Dr. Belluschi's firm has been the training ground for many successful architects now practicing in the Northwest.

Dr. Belluschi has contributed a great many articles to professional architectural magazines, and examples of his work have appeared in practically all professional journals in this country as well as in England, Italy, Denmark, and Argentina. He has received



Nationwide Pictorial Service

Pietro Belluschi

*Dean of the M.I.T. School of Architecture and Planning
as of January 1, 1951*

awards for architectural excellence from the Committee of Education of the American Institute of Architects, the Architectural League of New York, the Pan-American Congress of Architects, and Progressive Architecture.

In 1934 Dr. Belluschi was American delegate to the League of Nations Institute of Intellectual Co-operation in Madrid. He is a past president of the Oregon chapter of the American Institute of Architects, and was made a fellow of this professional society in 1948. He is a past president of the Board of Trustees of the Portland Art Museum, and has been a frequent lecturer at the Portland and San Francisco Art Museums. In the academic field, he was for a term design critic at Yale University, and has lectured at the Universities of Washington, Oregon, California, and Illinois.

Bates Honors Killian

PRESIDENT KILLIAN was the principal speaker at Bates College on November 4 when four new buildings were dedicated in services which were held in the college chapel.

In addition to making the main address on this occasion, President Killian received the honorary Sc.D. degree. Other prominent persons awarded honorary LL.D. degrees from Bates were: Harold R. Medina, judge of the U.S. District Court of New York; William Webster, '23, Bates trustee and chairman of the Research and Development Board, U.S. Department of Defense; and Lincoln Filene, President and Director of William Filene's Sons Company of Boston.

Building for the Future

WHEN the 277th meeting of the Alumni Council convened at the Graduate House on October 30, members and guests numbering 140 were in attendance to open the season's activities, under the able guidance of John A. Lunn, '17, President of the Alumni Association.

In the business portion of the meeting, new members of the Faculty were introduced to the Council members, new class and club representatives were named, as well as alternates, and changes in class affiliation were reported for 18 former students, nearly all of whom attended the Institute during the second World War.

Professor Emeritus Charles E. Fuller, '92, of the Department of Mechanical Engineering, presented a resolution on the death of John C. Runkle, '88, which was accepted by a rising vote.

Donald P. Severance, '38, Secretary, reported that between May 6 and October 24, 15 members of the M.I.T. Faculty and staff had visited 19 M.I.T. clubs, as far from Cambridge as Manila, London, Brussels, Paris, Oslo, and Mexico City. Recognition has been accorded to two new M.I.T. clubs which have been formed in Hong Kong and Venezuela.

President Lunn then called on Mr. Lobdell for a special message. After referring briefly to his trip abroad this summer and his visits to four foreign M.I.T. clubs, Mr. Lobdell presented to Walter Humphreys, '97, a certificate of honorary membership in the Alumni Council—this presentation being made 24 years and 11 months after the date of his election as an honorary member!

H. B. Richmond, '14, chairman of the Development Program's Committee on Alumni Participation, spoke briefly of the general campaign currently under way. He urged all Alumni who wished to contribute to the Development Fund to turn in their pledges by the end of 1950, since more than \$4,000,000 remains to be raised in the Institute's \$20,000,000 goal.

Karl T. Compton, chairman of the Corporation, next greeted the Council at its first meeting, in behalf of himself and President Killian who could not be present, spoke about the Institute's current policy in national defense work, and introduced Robert M. Kimball, '33, executive assistant to President Killian, who was the featured speaker of the evening.

In speaking of the Institute's program of building for the future, Mr. Kimball showed that the value of M.I.T. land, buildings, and equipment had risen from \$12,500,000 in 1925 to \$24,200,000 in 1950. During the same period, the value of dormitories, which stood at \$403,000 in 1926, had this past June become \$5,500,000. At present, students are moving from the temporary barracks, a wooden structure which formed part of the Radiation Laboratory, to the Riverside Apartment Hotel which is rapidly being converted into a dormitory housing 626 students. When the currently planned dormitory facilities are completed, more than 2,100 students will be able to live in M.I.T.-operated housing units in proximity to the main educational buildings. Mr. Kimball also indicated that the Administration had given some thought to inviting fraternities to build on Technology property west of

Massachusetts Avenue where future development calls for expansion of recreational and living quarters. In dealing with student housing, Mr. Kimball stated that the dormitory cost per student varied from \$1,630 for the Graduate House, to \$7,300 for the recently completed Baker House.

In a school of technology or science, large investments must be made in laboratory equipment. When built in 1938 for a cost of \$217,506 the Wright Brothers Wind Tunnel was the last word in units of its type; today's Supersonic Wind Tunnel cost \$813,000—not including equipment. Even maintenance is a sizable item: \$688,000 has been spent on refitting the chemistry laboratories since 1916; the mining laboratories were converted recently at a cost of \$57,000, whereas \$35,000 was spent to consolidate and modernize the steam laboratories.

Emphasis on Teaching

INCLUDED in a selection of some of the great teachers of 1950, in the October 16 issue of *Life* magazine, is Warren K. Lewis, '05, Professor Emeritus, father of chemical engineering, and for four decades teacher extraordinary at the Institute. Many generations of Technology Alumni will heartily endorse this recognition of Professor Lewis who, although officially retired two years ago, continues his effective guidance of the Institute's future chemical engineers. As chairman of the Faculty Committee on Educational Survey, whose report was summarized in last month's Review, Professor Lewis has made substantial contributions in formulating the Institute's future educational policies.

Further emphasis on good teaching is to be seen in a 32-page manual issued to members of the staff this fall. Prepared by a Faculty committee under the chairmanship of Professor Robley D. Evans of the Department of Physics, "You and Your Students" is intended primarily to assist the young instructors to improve their teaching techniques. The manual is not intended as a formula to tell experienced and successful teachers how to teach. Rather it is an effort to distill from their success those principles which have a recognized soundness, and to set these down in an orderly fashion as a starting point for further development and improvement.

M.I.T. Finances

IN his annual Treasurer's Report presented to the Corporation on October 2, Joseph J. Snyder, 2-44, pointed out that the endowment and other funds of the Institute increased from \$48,134,000 to \$52,383,000 during the year which ended on June 30, 1950. The growth in these resources of \$4,000,000 occurred even though substantial withdrawals from funds were made for buildings and other purposes. Approximately one quarter of the increase in the funds of the Institute during the past 10 years took place in the fiscal year 1949-50. At the end of the year, the book value of all investments was \$50,994,000 and the market value \$57,532,000. Important additions to M.I.T.'s investments included the Riverside Apart-
(Continued on page 102)

BUSINESS IN MOTION

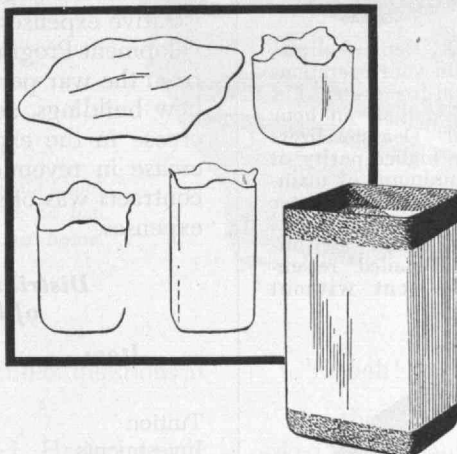
To our Colleagues in American Business . . .

The manufacture of a rectangular brass can or shield for a coil would not seem to be a difficult matter. Brass is noted for its easy workability. It can be stamped, drawn, spun, machined, polished, plated, and so on. However, there are a number of brasses containing varying proportions of copper and zinc and sometimes other metals, and Revere furnishes these alloys in various tempers. To take maximum advantage of the goodness of brass, it is essential to specify the metal with due regard to the fabrication processes to which it is to be subjected.

Take the case of these brass cans. They were being produced in ten steps: blanking from strip; draw; anneal; draw; anneal; draw; anneal; sizing draw; trim; tin both ends. This seems to be a simple, easy and conventional method, yet there was a high percentage of rejection due to cracking or tearing of the metal in drawing. There was also an "orange peel" effect, undesirable in appearance, and which sometimes interferes with plating. The chief trouble, however, was tearing.

The Revere Technical Advisory Service was asked to cooperate and obtained complete data on metal specification, annealing time and temperature (1350° F.) and progressive samples. Information and samples were forwarded to Revere Research, which made a thorough study of them, including photo-micrographs to determine the grain size in each of the samples. It was found that the brass strip had too large and irregular a

grain structure, and that the annealing procedure accentuated this condition. It was recommended that strip be specified in 70/30 cartridge brass, with a fairly uniform structure and the proper grain size instead of the size being purchased. Then, two anneals could be dropped, and annealing temperature reduced to 1000° F. for one hour. Conclusion: A better product, increased production at less cost, and lessening of the "earring" seen in the sketch of the original samples.



Two things stand out in this matter. One is the advisability of letting your suppliers know how you intend to fabricate or process the materials you buy, in order that they can work closely with you on specification. The other is that suppliers, no matter what they sell, can and are glad to collaborate with you on fabrication problems. Revere is delighted to give its Research engineers such

tasks as described here; so are other good firms, not only in metals, but in other industries such as chemicals, wood, felt, plastics, leather, paper and so on. It will pay you to take advantage of the brains of your suppliers.

Incidentally, the term "grain size" is another way of referring to temper, because annealing and working determine grain size. If you would like to know more about this subject, there is an extended, though non-technical, discussion of it in "Fundamental Characteristics of Revere Metals," which will be sent on request.

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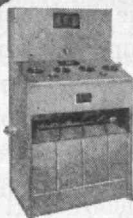
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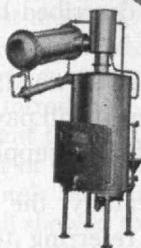
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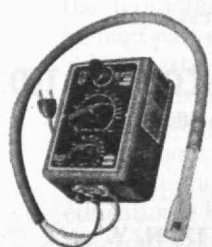
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THE INSTITUTE GAZETTE

(Continued from page 100)

ment Hotel which is being renovated as a dormitory, and the Tech Block which is opposite the main academic buildings on Massachusetts Avenue. Total plant resources had a book value of \$24,213,000 on June 30 last and increased \$1,970,000 during the year. Resources of the Institute totaled \$82,306,000 at the close of the fiscal period.

The volume of operations for the year was \$21,470,000 as compared with \$23,353,000 in 1948-1949 and \$21,036,000 in 1947-1948. The year ended with an excess of expense of \$65,667 but the increase in tuition, effective at the beginning of the year, kept the Institute from incurring a much larger deficit. The table which follows shows the percentage distribution of the major elements of income and expense in 1949-1950, in 1948-1949, and in 1939-1940. Income for indirect expenses on research contracts was significantly higher than in 1948-1949 and the expanding housing and dining services on the campus were reflected in the increase in the proportion of total revenues from this source. The greater percentage for general administrative expenses was due to the expenses of the Development Program. Deferred maintenance held over from the war period, along with moving expenses to new buildings, accounted for a large part of the increase in the expense of plant operations. The decrease in revenues for direct expenses on research contracts was offset by a corresponding reduction in expenses.

Distribution of Major Elements of Income and Expense

Item	Income, Per Cent		
	1939-1940	1948-1949	1949-1950
Tuition	48	16	20
Investments	32	6	6
Gifts and Other Funds	7	9	9
Research Contracts:			
For Direct Expense	3	58	50
For Indirect Expense	0	6	8
Dormitories, Dining Services	10	5	7
	100	100	100

Item	Expense, Per Cent		
	1939-1940	1948-1949	1949-1950
Academic	61	21	23
General Administrative	13	8	10
Plant Operation	10	6	8
Research Contracts:			
Direct	3	58	50
Medical and Other	4	2	2
Dormitories, Dining Services	9	5	7
	100	100	100

The total gifts received each year since 1941 are shown in the following table:

(Continued on page 104)

"Where are you?" asked a breathless little voice

The little boy who talked to Santa Claus



Direct Line to Toytown—Billy had seen Santa Claus in the stores. But this was the first time he had ever talked to him by telephone from his home.



Billy was four and a half and as full of questions as a quiz program.

But the telephone man didn't mind. He had a little boy of his own and he knew how it was. Patiently he kept explaining every step as he installed the new telephone in Billy's home.

Finally the job was done and he was about to make the usual call to the Central Office to be sure everything was in perfect working order.

But it wasn't the usual call this time. For it happened to be just a little while before Christmas and you know how excited a little boy of four and a half can get about then. And the installer and his co-workers at the Central Office had something specially arranged for just such a situation.

"Would you like to talk to Santa Claus?" he asked. "Right now — over this telephone?"

"Ooooh! Yesss!" said Billy.

So the telephone man got the Central Office and asked Santa Claus to come to the telephone if he wasn't too busy making toys. Said there was a nice little boy named Billy who wanted to talk to him. By now Billy's eyes were big as saucers, but quick as a flash he had the receiver to his ear. Next thing he knew, he heard a voice saying —

"Hello, Billy. This is Santa Claus."

"Where . . . are . . . you?" asked a breathless little voice.

"The North Pole," said Santa.

"Is it cold up there?" Etc. Etc. Etc.

They talked for several minutes and there wasn't a happier lad in all the land than Billy. You can just bet those telephone people were pretty happy about it too.

THIS IS A TRUE STORY of how a telephone installer spread gladness among little boys and girls wherever he found them in the homes he visited during the pre-Christmas period. . . . Nobody asked him and his Santa Claus conspirators in the Central Office to do it. It was their own idea—and just another example of the friendly spirit of telephone people. . . . Wherever they are, and whatever they do, they aim to serve you not only with efficiency but with courtesy and consideration as well.

Bell Telephone System



THE INSTITUTE GAZETTE

(Continued from page 102)

	Capital Additions	Total Gifts
1940-1941	\$ 511,949	\$ 888,180
1941-1942	534,316	926,897
1942-1943	616,702	884,268
1943-1944	1,132,835	1,367,507
1944-1945	1,245,911	1,736,892
1945-1946	2,042,533	2,549,969
1946-1947	1,945,297	2,382,681
1947-1948	1,381,329	2,191,822
1948-1949	1,900,737	2,536,802
1949-1950	5,064,326	6,528,089

The total of gifts for 1949-1950 does not include pledges to the Development Program received during the year. The growing support from industrial com-

panies continued upward during the year. Important additions were made to funds available for current operations and new laboratory structures.

The Alumni Fund marked its 10th anniversary during the year with 10,631 Alumni contributing \$166,280 to the Fund. This brings the total giving to M.I.T. through the Alumni Fund, during the first decade of its operation, to \$1,387,237.

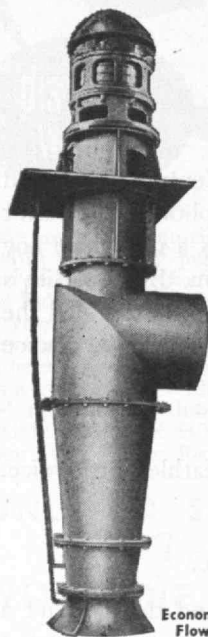
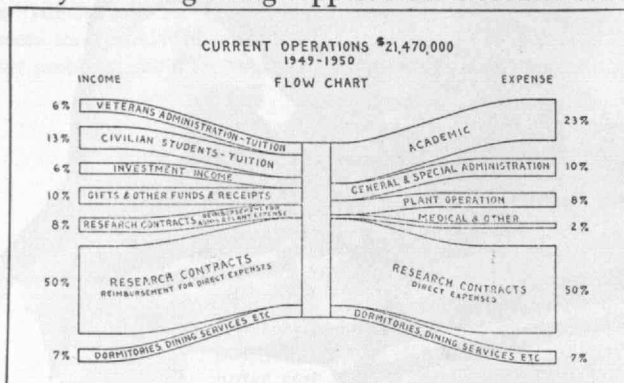
Chemistry Curricula Compared

At an all-day meeting at the Institute on January 22, five of the seven members of the Visiting Committee on the Department of Chemistry* attended a seminar at which attention was focused on the teaching of analytical chemistry at M.I.T., particularly at the graduate level. The members of the Committee were joined by members of the Department in thorough-going discussions of the present activities, needs, and aspirations of this Department. The Institute's Administration was represented throughout the day by President Killian.

The Committee advised the Corporation that with the completion this spring of an Organic Chemistry Laboratory for research and an Instrumentation Laboratory for undergraduate instruction and research, the physical needs of the Department are now well supplied.

(Concluded on page 106)

* Members of this Committee for 1949-1950 were: Edward S. Farrow, '20, chairman, Lamot du Pont, '01, Francis J. Chesterman, '05, Kenneth E. Bell, '17, William M. Stratford, '21, Julian W. Hill, '28, and Ralph A. Beebe.



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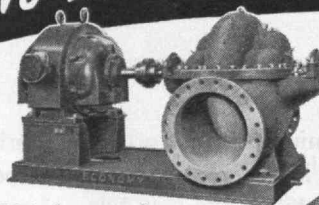
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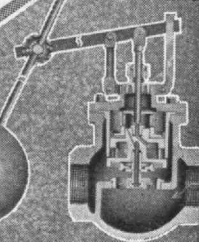
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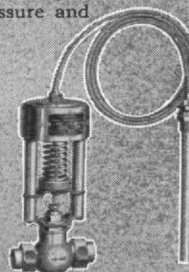
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*In the shop . . . 28 ranges in one case to locate circuit troubles on production equipment.
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28 Instrument Ranges

D-C VOLTS: 100 mv, 1/10/50/200/500/1000 volts (20,000 ohms per volt).

A-C VOLTS: 5/15/30/150/300/750 volts.

D-C CURRENT: 50 microamps; 1/10/100 milliamps; 1/10 amps.

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RESISTANCE: 3000/30,000/300,000 ohms; 3/30 megohms.

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Precision Electric

1 Heat Treat Furnaces

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2 Air Cooled Transformers

(to 1000 KVA)

Constant Current

3 Regulators (Static Type)

1 Hevi Duty Precision Electric Heat Treating furnaces are built in a large variety of types and sizes — for many heat treating operations — with temperature ranges to 2500° F (1371°C). They are standard production equipment in many national industrial plants.

2 Hevi Duty Dry Type Air Cooled Transformers with or without tap changing switches as well as special transformers for special requirements.

3 Hevi Duty Constant Current Regulator (Static Type) for series lighting. To transform constant potential to constant current, using a resonant circuit with patented exclusive features. A decided improvement over any other known type of regulator.

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HEAT TREATING FURNACES • ELECTRIC EXCLUSIVELY
DRY TYPE TRANSFORMERS — CONSTANT CURRENT REGULATORS
MILWAUKEE 1, WISCONSIN

THE INSTITUTE GAZETTE

(Concluded from page 104)

plied. The laboratories throughout the Department have been modernized and the equipment is adequate. There exists a real need for a large lecture room, but this is not a problem of the Department of Chemistry alone.

The staff of the Department of Chemistry is well qualified, enthusiastic, and flexible; and it is developing and using new and apparently most worth-while techniques. Two recent innovations include: the presentation by graduate students of so-called "propositions" to replace the oral part of major examinations in organic chemistry, thus encouraging critical reading and original thinking; and the use of seminars in organic chemistry to give the student added experience in speaking and writing.

The American Chemical Society has been evaluating the curricula of the chemistry departments in the various graduate schools of the country. In this evaluation, the Institute's Department of Chemistry occupies a most gratifying position.

ALL EXPERIENCE IS OF CHANGE

(Continued from page 90)

But perhaps an even more important contribution of the brain to the sensory sequence of events is integration of impressions received from different senses, in the appraisal of a single phenomenon. An example, again drawn from the sightless, will make this clear. A blind man readily distinguishes between a cube and a sphere by feeling them. The sighted person easily makes the same distinction with his eyes. But when an individual who has been blind from infancy regains his sight and is shown a cube and sphere without being allowed to touch them, he cannot tell which is which. This fact demonstrates that the integration of visual and tactual impressions of form is not inherent, but rather is achieved in the central pathways through experience and training.

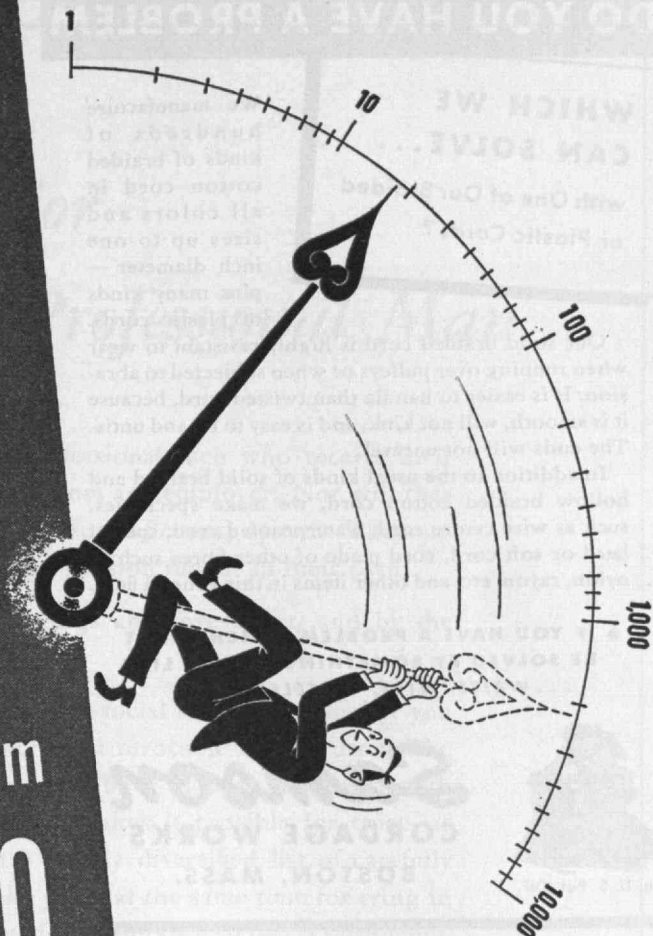
In prospect then, what avenues hold most promise open to mankind in enhancing technical usefulness of the human senses? Better basic understanding of sensory mechanisms, particularly of the chemical senses, is sorely needed. Certainly hearing aids should be improved until they are at least as helpful as modern spectacles. Improved aids for the chemical senses would be of value for technical activities, although whether they would be desirable for everyday use is a question.

But the greatest immediate opportunity for improving sensory utility lies in improvement of the central pathways, through intensive training of perception. During World War II, it was found that an individual with good eyesight, and thorough acquaintance with the appearance of enemy aircraft, could nevertheless by training improve at least fivefold his ability to identify airplanes from brief and distant glimpses. This

(Concluded on page 108)

If You Dropped Your Operating Pressure

by factors ranging from
100 to 10,000



... would you make a better product?

... would you increase production rates?

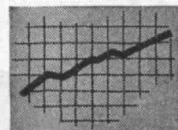
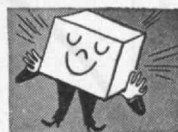
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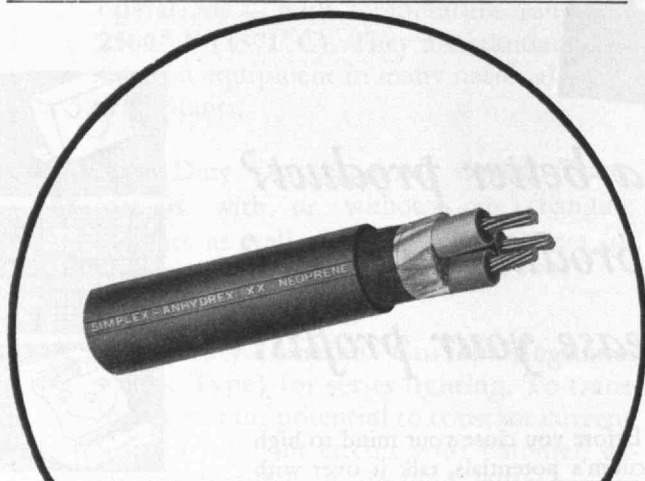
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ALL EXPERIENCE IS OF CHANGE

(Concluded from page 106)

article has mentioned evidence indicating that the other senses are similarly amenable to improvement by educative processes. Therefore it is in realizing the untapped potential of sensory experience, through training of perception, that man finds his greatest opportunity to improve the usefulness of his senses.

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"Social Security" For The Professional Man

Most doctors, lawyers, and other professional men who receive their incomes from fees, will not get pensions from any employer. Nor will they receive old-age benefits under the present Social Security system. They are faced with the necessity of accumulating "pension funds" of their own.

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An excellent means of building your own social security — whether you are a professional man or not — is to create a revocable living trust at The New England Trust Company. You do not have to start your trust with a large sum. Our Common Trust Fund makes it possible for trusts as modest as \$4,000 to be invested in a widely diversified list of carefully supervised investments. You can make plans at the same time for tying in this part of the estate with the proceeds of life insurance so that at retirement, or death, the greatest use can be obtained from the property under the guidance of an experienced trustee.

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BANKING FOR
NEW ENGLAND

THE ENGINEER AND SECURITY

(Continued from page 93)

When refinery oil furnaces were built in the form of a cubical brick box, containing horizontal heating tubes and a fire beneath, the bottom rows of tubes would overheat, as might be expected, from being subjected to radiant heat as well as heat absorbed by contact with hot gases. In a short time they would sag of their own weight, carbonize, and fail. The accepted answer was careful inspection and replacement of tubes and fuel combustion with wasteful excess of air. As the oil-refining industry began to expand, there began a period of design during which effort was made to hide tubes exposed to radiant heat behind brick walls for protection or to cover them with refractories. Still, failure continued to occur because some tubes were inevitably nearer the source of heat than others, and gravity exerted the same old pull.

Why not build a furnace with tubes symmetrically disposed around the source of heat, and why not hang them vertically so they could not sag? Why not be bold and put the major part of the heating surface in the radiant section to absorb and neutralize the radiant heat, instead of trying to dodge it or kill it with excess air? Why not indeed? This concept resulted in a vertical cylindrical-type furnace, with a tubular radiant section formed by lining the combustion chamber with tubes spaced symmetrically around its wall, with burners in the center delivering high-temperature heat either upshot or downshot. The radiant

heat was then absorbed evenly. No tubes were overheated and all of them operated at the maximum allowable temperature. To complete the picture, an air heater was added to catch the residual heat from the flue gases, and put this waste heat into the combustion air, thus eliminating the costly and conventional economizer section. Again a new idea has worked so well that the oil heaters built for the Gulf Refining Company at Girard Point in 1928 are still operating efficiently. They served as a pattern for many others, likewise still in efficient operation, and now even prefabricated heaters of this type have become standard commercial refinery equipment.

Problems and situations such as these are constantly confronting the engineer. Design, layout, materials, and types of mechanism must be chosen with originality and ingenuity to be useful—not by following precedent. Unwillingness or fear to depart from the beaten track can often be traced to the quest for security. In seeking this elusive and lethargic state, there grows a tendency to entrench oneself in a job by resorting to overcaution, to become more and more conventional as a protection against mistakes, to resist progress for fear of its effect on one's existing status. When this occurs, we truly become slaves to our job, live in apprehension of what might happen to our employer, forego ambition, adventure, and even accomplishment to make retirement and pension the objective at which to aim.

If such a course produced real security it might have something to commend itself. As it is, trying to

(Concluded on page 112)

CHRISTMAS GIFTS THAT ARE DISTINCTIVE and not generally available elsewhere



At the sign of the Golden Fleece you will find, this Christmas Season, gifts that reflect the uncompromising standards of quality and workmanship which we apply to everything we make and demand in everything we sell.

We have an unusually wide selection of gifts for Men and Boys that are of good taste...that are unusual...and (what is so important to both giver and recipient) not generally obtainable elsewhere.

*Our 36 page illustrated Christmas
Catalogue will be sent upon request*

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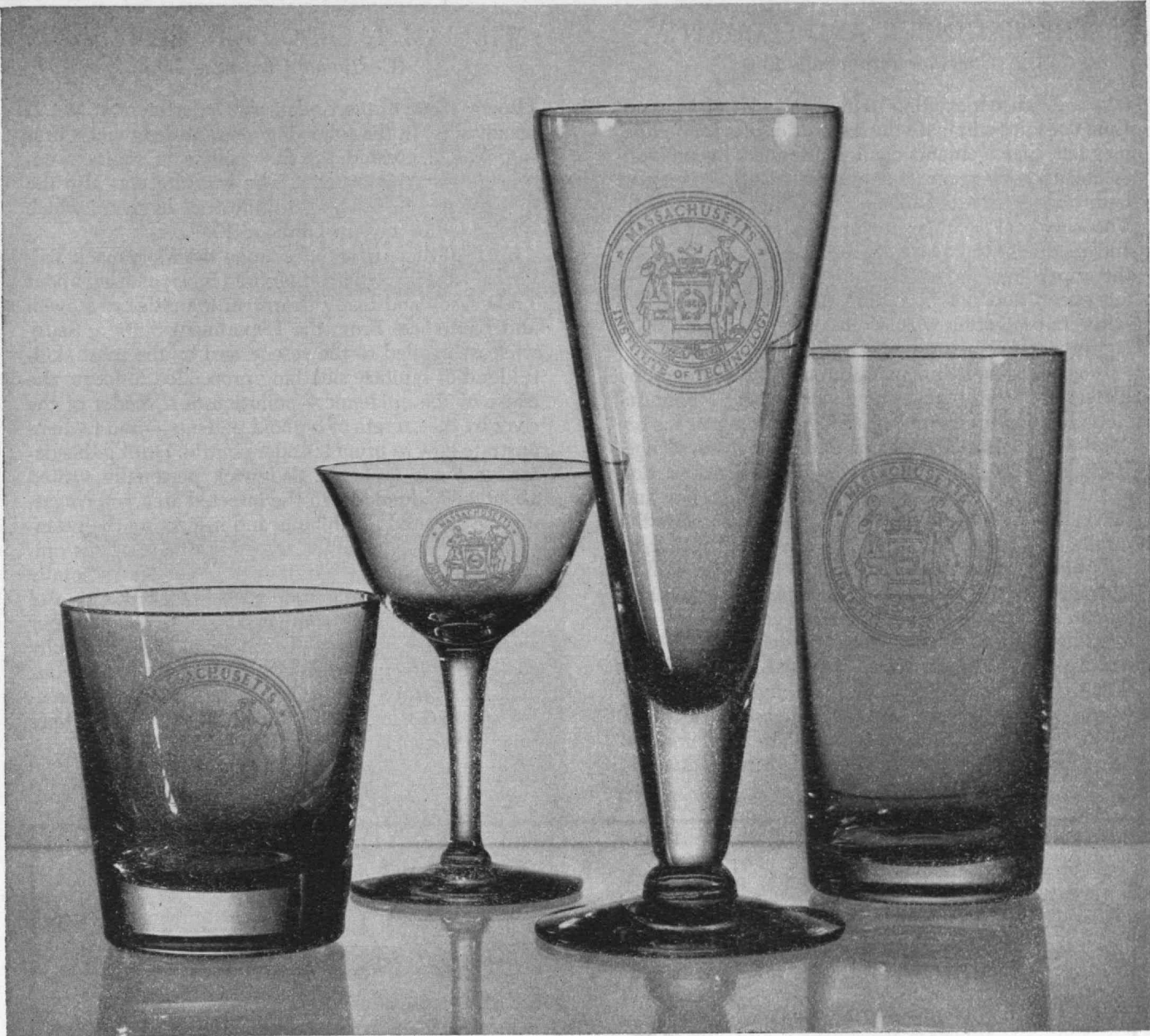
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This glassware has the endorsement of the M.I.T. Alumni Association. Each glass has an excellent plate etching of the official M.I.T. Seal and is of the highest quality, brilliant, clear lead crystal,—hand made by Tiffin Craftsmen.

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My check is enclosed for \$.....

Name Class

Address.....
.....

THE ENGINEER AND SECURITY

(Concluded from page 110)

take a defensive position behind this sort of Maginot Line does not eliminate the hazards of life, for companies fail, managements change, products become obsolete, and inflation cuts our income. Nothing, good or bad, remains static. Change is the only normal state. The only real security lies in developing our ability and readiness to cope with the unexpected and with the unpredictable when it looms into reality, in moving ahead and not becoming discouraged when we falter, in protecting what we have by constantly striving for improvement.

In conclusion, let me point out that the engineer, by his very ability to create new wonders for human society, has acquired a responsibility which goes far beyond the practical application of technical knowledge. His mission in life must include giving consideration to the effect of technological advance on society and sharing in the task of helping people to assimilate the results of scientific progress. He must realize that, in his work, he must deal with human beings as well as with mechanisms and energy, that spiritual forces and human motivation are factors which can never be disregarded but must be reckoned with just as truly as steam pressure or electrical potential. Above all, he should never be dismayed or discouraged in this new world, largely of his own making, but venture on toward the limitless horizons which stretch before us. The road into the future is wide and untraveled.

WILLIAM T. SEDGWICK, BIOLOGIST

(Continued from page 95)

Drown, Head of the Chemistry Department at M.I.T. as advisers. In the following year, at Sedgwick's urging, M.I.T. created the first course in sanitary engineering in this country. The Institute was also the first to offer instruction in industrial hygiene, which was added to the curriculum in 1907.

In 1890 there descended upon the Merrimack Valley a terrible epidemic of typhoid fever, causing about 1,500 cases and many deaths in the cities of Lowell and Lawrence. From the Experiment Station, Sedgwick was called to the rescue and by the most skillful kind of sanitary sleuthing proceeded to locate the cause of the epidemic — pollution of a feeder of the river by the excreta of typhoid patients — and to demonstrate how to bring it under control. During this detective work Professor Sedgwick personally visited about 2,000 domiciles in the infected area, interrogating the agitated inhabitants and inspecting the premises. Two years later he traced another serious epidemic of typhoid in Springfield, Mass. to a totally unsuspected raw-milk supply. Sedgwick was one of the first to advocate the universal pasteurization of our market milk, a goal which even yet has not been fully achieved, although today about 85 per cent of all our milk is subjected to this most desirable heating process, and in the majority of the large cities it is 100 per cent pasteurized.

(Continued on page 114)

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four major advances in solderless wiring



PRE-INSULATED DIAMOND GRIP* terminals. They're already insulated. Install with one quick stroke of a tool!



AUTO-CRIMP* terminals provide up to 3300 excellent terminations per hour when used in AMP AUTOMATIC MACHINES.



SOLISTRAND™ terminals for solid or stranded wire.



CORROSION PROOFING special process protects terminals from acids, salt spray and noxious fumes.

As part of a continuing campaign for technical improvement in Solderless Wiring, Aircraft-Marine Products Inc. has frequently called upon M.I.T.'s laboratory and research facilities for exhaustive test data.

Work done here has played an important part in designing and adapting AMP terminals for specialized uses, especially in the aircraft and electronics industries. Noise level studies in amplified circuits as well as work with methods of **CORROSION PROOFING** are outstanding examples.

As a result, technical data is now available on a wide variety of subjects relating to solderless terminals and their performance.

Shown here are but four of the major achievements contributed by AMP toward a better and more economical means of wire termination.

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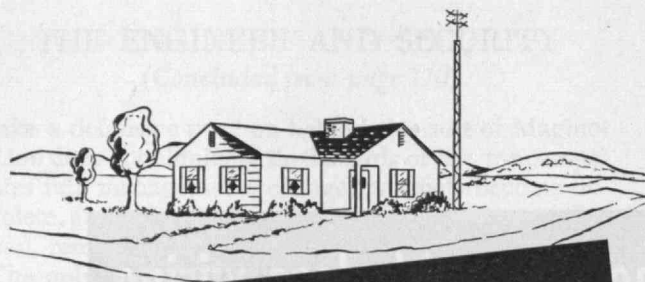
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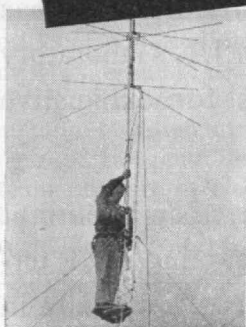
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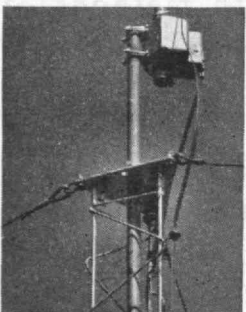
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Trylon Antenna Masts bring big tower reliability in a small triangular shaped steel rod unit only 6 1/2" wide on each side and weighing only 20 lbs. for a complete 10-foot section. They can be installed quickly at modest cost, either on the ground or on a roof. Write for folder "M."

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TRYLON TOWERS and MASTS

WILLIAM T. SEDGWICK, BIOLOGIST

(Continued from page 112)

In his classes in later years Professor Sedgwick liked to draw upon his experiences in these and other epidemics. To some of us these narratives seemed like digressions and wanderings, until suddenly we came to realize that they were extremely valuable lessons in human engineering and public relations, and that after all, public-health administrators must deal with people as well as with germs. The Chief, as he was affectionately known to his colleagues and graduates, seemed to have a very flexible system in his lectures, whose topics might be based on a newspaper clipping from the morning press or a recently published scientific article, or might be inspired by a naive question from a bewildered student. But whatever he talked about was worth listening to. It all built up to a liberal education, even in an engineering school.

Although he had a logical, orderly, and brilliant mind, Professor Sedgwick was indifferent about such vulgar and trivial matters as money, which was probably to his credit, and about such matters as the neatness and order of his office. His desk was frequently covered with reports, letters, pamphlets, books, and other objects, all apparently in complete disarray. Yet if he wanted to find something, such as a letter, he could always lay his hand instantly upon it.

Among his numerous extracurricular activities, Professor Sedgwick served as curator of the Lowell Institute, the lectures of which were given on afternoons and evenings in Huntington Hall. While the audience, consisting of students and the cultural elite of Boston, was arriving he would stand at the top of the staircase in the old Rogers Building, holding a venerable top hat over one arm as his invariable badge of office. He seemed to know everyone among the hundreds who customarily attended these lectures and greeted them all in his usual pleasant manner. It was not his function to select the speakers: These were chosen by the trustee and distant cousin of the founder, President A. Lawrence Lowell of Harvard. It was Sedgwick's duty, however, to minister to their social and professional needs, meeting their trains at any hour, housing them, dining and wining them, and providing all necessary facilities in a properly ventilated auditorium. He served in this office with extraordinary success for almost 25 years, until his death in 1921.

Many honors came to Professor Sedgwick and through him to the Institute. He was a director or trustee of numerous institutions, such as the Sharon Sanatorium, the Faulkner Hospital, and various others. He was president of a number of scientific societies, including the American Public Health Association (1914-1915), which subsequently established a Sedgwick Memorial Medal for distinguished service in public health, and the Society of American Bacteriologists. He was a member of numerous public and private organizations, such as the Massachusetts State Public Health Council and the International Health Board of the Rockefeller Foundation. In addition, he was in great demand as a speaker and writer.

Despite this crowded and extremely busy existence, Professor Sedgwick seemed always to have ample

(Concluded on page 116)

What GENERAL ELECTRIC People Are Saying

C. E. WILSON

President

COST OF RESEARCH: It may seem to be a paradox that, at a time when science has so far progressed that its findings and its further directions are almost incomprehensible to ordinary men, it finds itself actually tied more tightly to ordinary men than ever before—first, because it has succeeded in almost scaring them to death with nuclear fission, and second, because the cost of research has gone right through the roof and must be paid for in large part out of the ordinary man's pants pockets.

Modern research has become enormously expensive. It must be supported by tremendous sums of money supplied by laymen, through direct or indirect taxation, even though those same laymen can in the very nature of things have little to say as to how that money is spent. A prime example of this is the development of atomic weapons, where decisions are taken by government as a matter of public policy, but often with the utmost secrecy. These decisions may cost the taxpayer his life; they may penalize him in his enjoyment of the normal fruits of progress; they are almost certain to cost him a lot of money.

As taxpayers and ordinary men, I don't think that any of us are quarreling with this state of affairs. I merely submit it to you—to those of you who are practicing scientists—as a sort of climatic condition which, like artificial rainfall, is new in this half of our century and therefore worthy of your consideration.

*Research Laboratory Dedication
Schenectady, New York
October 9, 1950*



M. J. COLUMBE

*General Engineering & Consulting
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SHADOW MICROSCOPY: In an electron diffraction instrument, it is often desirable to view the specimen to determine its condition after evacuation of the system has taken

place. Sometimes all or part of the sample material is removed during evacuation and no diffraction pattern can be obtained. At other times it may be that the supporting film is too thick or that the sample material is improperly dispersed on the film. Also, it is often desirable to locate the area from which diffraction is taking place.

These conditions can well be met through the incorporation of . . . a new type of shadow microscopy . . . It uses a low-cost attachment that can be adapted to existing electron diffraction instruments. It requires no adjustments after the initial installation, is easily manipulated, and gives the required information.

*Electron Microscope Society
of America
Detroit, Michigan
September 14, 1950*



E. E. PARKER

Apparatus Department

TURBINE DESIGN: During and following the war both the users and manufacturers of steam turbines for electric power generation in the United States have been continuously challenged by the rapid growth of the electric power load requiring a large increase of generating capacity.

Of the generating capacity currently being added, that provided by steam has comprised approximately 80 percent of the total. It might be assumed that such a condition would retard design progress in the interest of increased production. This is not the case, however, as the same period has been one of rapid progress in the development of the steam turbine and the entire steam plant. Notable advances have been made in the (1) development of much larger 3600-rpm units, (2)

manufacture of turbines for initial temperature as high as 1050 F, (3) improved designs and extensive production of turbines for 950 and 1000 F initial temperature, and (4) wide application of the resuperheat cycle at today's pressure and temperature conditions.

The progress in development of steam-electric generating equipment has permitted continued reduction in the national average station heat rate, and is resulting in the construction of some new steam units with over-all heat rates below 10,000 Btu per kw-hr—the best with over-all thermal efficiency approaching 37 percent at the most favorable load.

*General Electric Review
August, 1950*



F. M. BAILEY

Apparatus Department

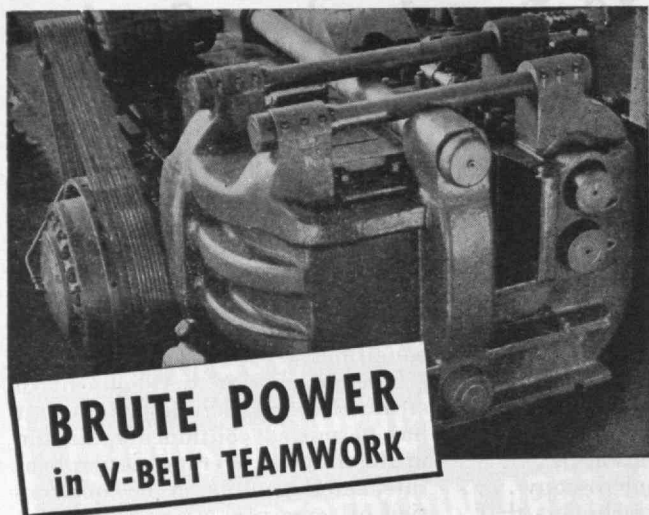
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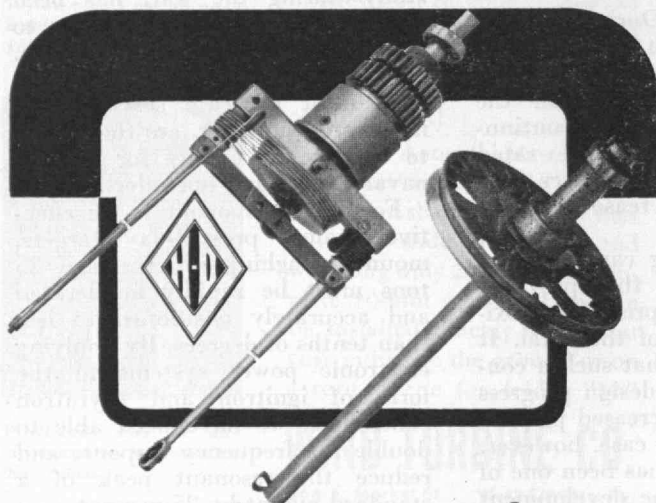
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WILLIAM T. SEDGWICK, BIOLOGIST (Concluded from page 114)

time to devote to correspondence with, or visits from, his "boys," the many graduates of his Department — counseling, guiding, encouraging, and occasionally rebuking them. During World War I, he sent a form letter to all of us who were serving far from home in the armed forces, a letter which did much to promote morale and to remind us of the civilized things in life.

On January 24, 1921, I came to Cambridge from Washington, D.C., to give a lecture before Professor Sedgwick's classes. After this event I sat before his cluttered desk almost under the dome of the new buildings by the Charles River, and then accompanied him to lunch at a cafeteria on Massachusetts Avenue. He did not have much time that day, as he was faced with a long and exhausting meeting on the subject of a state university for the Commonwealth.

He did not have much time. Two days later I was shocked to read of his sudden death on January 25. His only survivor was his wife, Mary K. Sedgwick, to whom he had been ideally married for 39 years. He was succeeded as head of the Department of Biology and Public Health by Professor Samuel C. Prescott, '94, who had been his assistant and associate since 1894, and who later served also as dean of science at the Institute, a worthy disciple of a great leader. In The Review for April, 1921 (page 115) there appears an admirable sketch of the life and work of Sedgwick, written by Dr. Prescott. A more complete account of the life of this pioneer of public health appears in a book of similar title* by three of his most distinguished pupils: Edwin O. Jordan, '88, George C. Whipple, '89, and Charles-Edward A. Winslow, '98, issued by the Yale University Press in 1924.

In December, 1947, M.I.T. dedicated the William Thompson Sedgwick Laboratories of Sanitary Science in honor of his contributions to public health.

After all these years the story of Sedgwick, in part at least, is worth the retelling, for one of the most precious things in modern life is the noble tradition of the past. William T. Sedgwick was an unforgettable character not only because he was a pioneer in public health, but because of his charming personality, his wisdom and humor, the inspiration of his teaching, and his qualities as a true gentleman. "Men of courage, men of sense and men of letters are frequent," wrote Richard Steele in 1713, "but a true fine gentleman is what one seldom sees."

* A Pioneer in Public Health: William Thompson Sedgwick.

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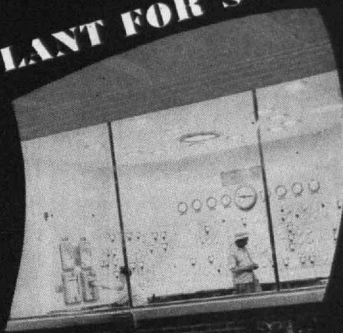
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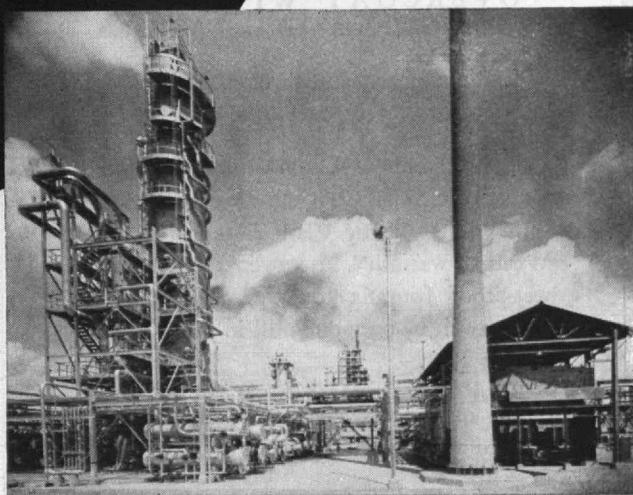
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ing to bring together our scattered and inadequately housed groups in electronics and nuclear science. We confidently hope that the remaining months of the Development Program will make this possible, along with a much needed Faculty Club.

The Development Program. The \$20,000,000 Development Fund drive was carried beyond the \$15,500,000 mark with the receipt of the grant of \$1,500,000 from the Kresge Foundation late in June. This grant brings the additions to the Development Fund to around \$10,000,000 since June of last year. Of the total amount of the fund to the present date, somewhat over one-third has come from corporations, another one-third from individuals, and the rest from foundations, estates, trusts, and other sources.

Three gifts of \$1,000,000 or more highlighted this year's effort. The Campbell Soup Company grant of \$1,000,000 for the biology and food technology laboratory and the \$1,500,000 from the Kresge Foundation for an auditorium and chapel, made major contribution to our building program. An unrestricted gift of \$1,000,000 was given to the Institute by John D. Rockefeller, Jr. This gift will be used for continuing operating needs, in accordance with the preference expressed by Mr. Rockefeller and our own objective of bolstering the Institute's unrestricted funds. In making this gift, Mr. Rockefeller stated that he did so in the hope and the belief "that the Institute may continue to expand its strategic service to all interested in the advancement of science for the betterment of mankind, irrespective of national boundaries."

Some 200 corporations have contributed to the Development Program to date, and the number is steadily increasing. Almost one-fourth of these companies are making grants spread over a period of years under the Industrial Liaison Program through which the Institute renders the companies a variety of special services. The growth in number of these co-operative arrangements with larger companies is heartening endorsement by industry of the pattern of co-operation which M.I.T. is developing.

Impressive and promising is the fact that 40 per cent of all the cash gifts received by the Institute during the past year came from corporations.

The untiring efforts of Marshall B. Dalton, '15, as chairman of the M.I.T. Development Fund have contributed mightily to its successful year, as have the interest and support of Mr. Sloan, the honorary chairman. I find it difficult to pay adequate tribute to the M.I.T. Alumni throughout the country who have given unsparingly of their time, their ability, and their effort. This spring more than 200 members of the Committee on Financing Development attended a meeting at the Institute, the third national meeting since the drive began. The interest of the M.I.T. Alumni in the Development Program, as indicated in extraordinary measure by this group, gives us reason to expect that the current year will bring the \$20,000,000 drive to a successful conclusion.

Special needs and opportunities at M.I.T. were brought to the attention of the Corporation when Dr. Killian mentioned the inadequacy of funds for scholarships, for the development of the Round Hill estate, and for the support of the humanities and social sciences. Speaking of these needs in that order, he said:

Scholarships. The objectives of the Development Program include many of the current major needs of the Institute, but not all. One serious omission is adequate

(Continued on page 120)

A Report **TO M.I.T. MEN**

In 1917 Walker Memorial Building was opened, a gift from Alumni for the welfare of M.I.T. students. In addition to including offices for student activities and serving as a student social center, this building houses the dining service.

In 1949-50 nearly one million meals were served to staff and students and 57 dances, receptions and balls were held in Morss Hall. Morss Hall seats approximately 500 people. Thus, each chair served 2,000 people per year or 5.5 persons per day. We thank the Alumni for making these services possible.

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THE INSTITUTE GAZETTE

(Continued from page 118)

scholarship funds. Last year our undergraduate scholarship awards totaled only \$188,096, or \$53 per undergraduate. Of the total undergraduates enrolled, 602 received scholarship assistance, and the average award was \$312.

At another institution which draws a student body with a national spread comparable to ours, but which has a lower tuition, the undergraduate scholarship awards averaged \$100 per student enrolled. Many other institutions are similarly higher in their awards than our own.

The evidence is clear that many applicants of outstanding merit but of inadequate financial means turn away from the Institute, their first choice, to other colleges where more adequate scholarship aid is available to them. . . .

The Executive Committee has earmarked for scholarships the income of \$500,000 received for the Development Program as a first step in building up our funds. A major objective in the months and years ahead must be the further increase of our undergraduate scholarship funds: For this purpose we need at least to double our present endowment of \$3,400,000. In stressing the need for undergraduate scholarship funds, I do not infer that we do not at the same time need additional graduate scholarship funds. We do, but our graduate scholarships are more nearly ample than our undergraduate . . .

Round Hill. Last year I spoke of our opportunity to make effective use of Round Hill, the estate near New Bedford, Mass., given the Institute by Mrs. Matthew Astor Wilks, provided we could obtain funds to recondition the large stone mansion on the property and to endow its operation. We are still seeking funds for this purpose, since we envisage many important uses for the estate . . .

Humanities and Social Sciences. I have mentioned plans to strengthen our educational work in these fields. Again an
(Concluded on page 122)

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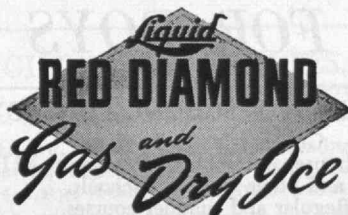
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THE INSTITUTE GAZETTE

(Concluded from page 120)

important step ahead depends upon obtaining the necessary funds, and support is not so readily obtainable for the humanities as it is for technology and science. Corporations, for example, do not feel that they can properly contribute to the humanities. I hope that the concept of the "Fourth School" as adopted by our Faculty and the important fields embracing the social sciences can attract the support which will enable us to exploit this part of our program. We need an endowment, including endowed professorships, of at least \$2,000,000 to fund essential activities in these fields.

I cite these special needs, not included in our Development Program, because they are not so obvious and not because they necessarily have top priority. The department heads of the Schools of Science and Engineering have well demonstrated needs for new equipment, space, and programs running into many hundreds of thousands of dollars and which we must and will provide. Our new program in geology is an example. . . .

President Killian's annual report included statistics on the financial operations for the year 1949-1950 (summarized in the Treasurer's Report on page 100 in this issue), recorded personnel changes, the most important of which have been published in The Review during the last year, and was concluded with a tribute to his colleagues as follows:

In conclusion, I want to emphasize the major contribution to the administration of the Institute being made by Julius A. Stratton, '23, our Provost. He has a sound and deep understanding of education and a sure administrative touch. So likewise have the deans, who, together with the provost and the chairman of the Faculty, make our Academic Council an effective instrument.

The event of the year was the return full time to the Institute of Karl T. Compton, chairman of the M. I. T. Corporation, following his happy triumph over illness. I can testify to the reassurance we all feel now that we again have the uninterrupted benefit of his vigor and leadership.

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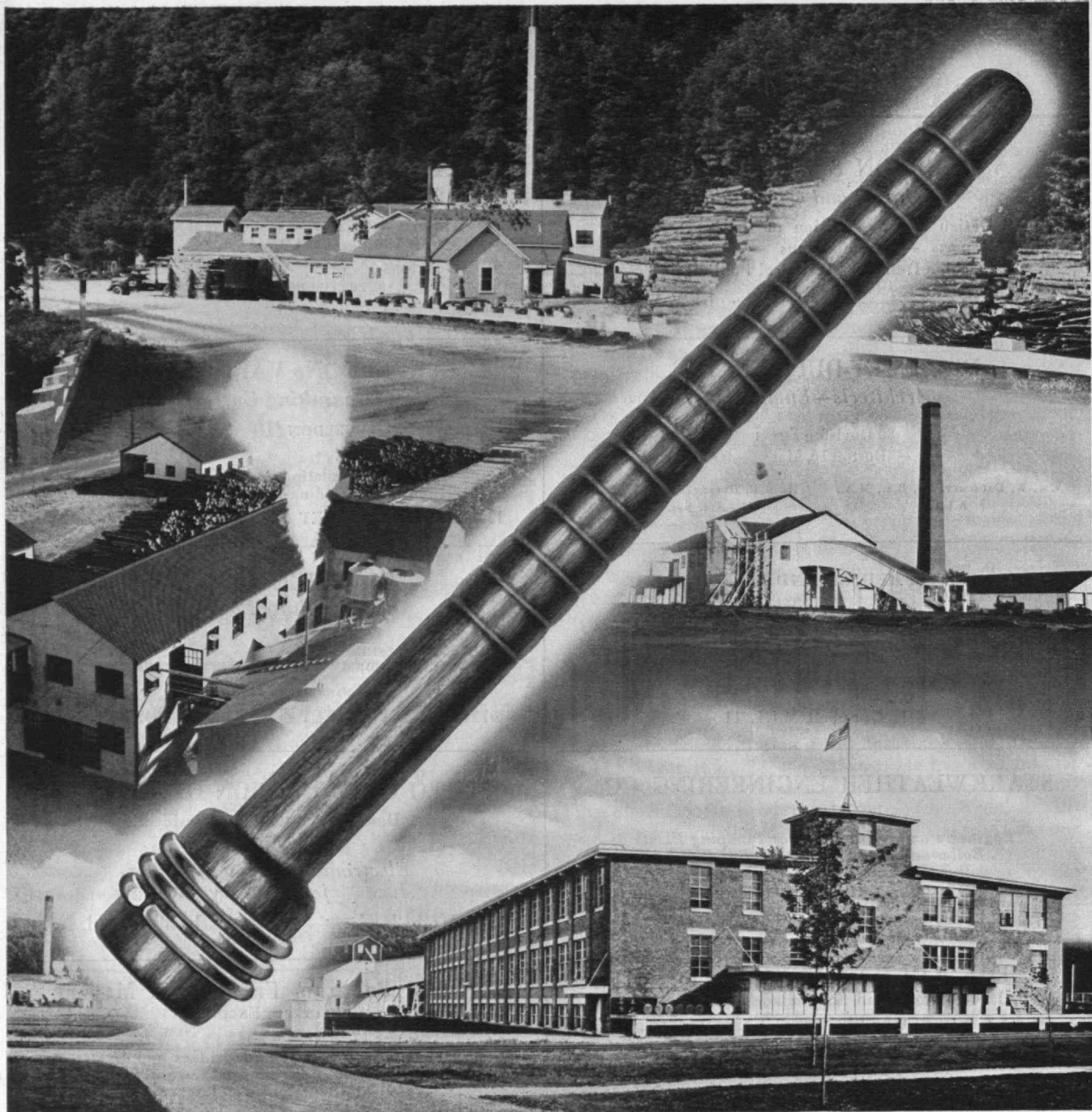
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Alumni AND Officers IN THE News

In High Esteem

In *Life's* special issue on United States schools, WARREN K. LEWIS'05 is listed among the professors whom students consider 1950's great teachers. A photograph of Dr. Lewis, Professor Emeritus of Chemical Engineering and Lecturer at the Institute, appears on page 114 of the above-mentioned magazine of October 16.

JAMES R. KILLIAN, JR.'26 received an honorary doctor of science degree from Bates College and was the principal speaker at a special convocation on November 4 during the dedication of new Bates' campus buildings.

The University of Minnesota's Outstanding Achievement Medal was presented to LAWRENCE B. ANDERSON'30 on October 5. The medal is awarded to alumni of the University who have made significant accomplishments in their respective professional fields. Professor Anderson is in charge of the Institute's School of Architecture.

In Printers' Ink

ALLEN R. GREENLEAF'15 is the author of *Photographic Optics* which has been published by the Macmillan Company.

FREDERICK H. NORTON'18 and JAMES A. STAVROLAKIS'49 are coauthors of an article in the September 1, 1950, issue of the *Journal of the American Ceramic Society* entitled, "Measurement of the Torsion Properties of Alumina and Zirconia."

ERIC HODGINS'22 is a bit more serious in his new book, *Blandings' Way*, which, like *Mr. Blandings Builds His Dream House*, became a Book-of-the-Month Club selection. Publisher: Simon and Schuster, Inc. 1950.

Fabric Defects, published by the McGraw-Hill Book Company, Inc., during the past summer, was written by JULIUS B. GOLDBERG'26.

HOLT ASHLEY'48 and GEORGE P. HAVILAND'49 are the collaborators of the article, "Bending Vibrations of a Pipe Line Containing Flowing Fluid," published in the September, 1950, issue of the *Journal of Applied Mechanics*.

A compilation of heretofore scattered and incomplete literature has resulted in a new John Wiley and Sons, Inc., publication entitled, *Handbook of Experimental Stress Analysis*. Among the many distinguished contributors, we note the following M.I.T. Alumni and staff members: C. RICHARD SODERBERG'20, "Working Stresses"; JOHN B. WILBUR'26 and CHARLES H. NORRIS'31, "Structural Model Analysis"; WILLIAM M. MURRAY'33 and T. J. Dolan, "Photoelasticity, Part I: Fundamentals and Two-Dimensional Applications"; JOHANN H. MEIER'38, "Strain Rosettes"; and CHARLES W. MACGREGOR, staff, "Mechanical Properties of Materials."

In the News

CHARLES E. SMART'05 has been elected president of W. and L. E. Gurley, Troy, N.Y.

EDGAR I. WILLIAMS'08 has been elected president of the Municipal Art Society of New York.

Appointed Under Secretary of Commerce by President Truman in 1946 and sworn in as deputy administrator of the Economic Cooperation Administration in June of 1949, WILLIAM C. FOSTER'18 was named to head the E.C.A. and became its new administrator on October 1 of this year.

MARION W. BOYER'25 became general manager for the United States Atomic Energy Commission on November 1. Previous to his acceptance of the top management post on the Commission staff, Mr. Boyer served with the Esso Standard Oil Company as vice-president and contact director for manufacturing, supply and transportation and chemical products operation.

JOHN H. FIELDING'25 was elected chairman of the rubber division of the American Chemical Society at a fall semi-annual meeting of that organization held in Cleveland, Ohio.

A newly-created school of architecture and landscape architecture was started this fall at Ohio State University with ELLIOT L. WHITAKER'31 named as its director.

DAVID B. LANGMUIR'35, who has been a member of the staff of the general manager, Atomic Energy Commission, was appointed A.E.C. liaison officer at Chalk River, Ontario, Canada.

In the Spotlight

ALFRED P. SLOAN, JR.'95, chairman of the board of General Motors, spoke on October 30 at the *Financial World* annual award banquet and accepted on behalf of his management the gold "Oscar of Industry" trophy for the best 1949 annual report.

FREDERIC W. NORDSIEK'31 of the Research and Development Division, Standard Brands, Inc., spoke on developments of new improved active dry yeast before dinner meetings of home economists, food editors and other "thought leaders" in the consumer food field in Minneapolis on September 28, Kansas City on October 2 and in Chicago on October 4.

MARTIN DEUTSCH'37 presented a paper entitled, "Fast Counting" at the third annual joint conference of the American Institute of Electrical Engineers and the Institute of Radio Engineers held in New York October 23 through October 25.

LEO L. BERANEK, staff, presented a paper at the National Electronics Conference in Chicago, Ill., on September 26. Professor Beranek's paper was entitled, "Enclosures and Amplifiers for Direct-Radiator Loudspeakers."

Two M.I.T. staff members took part in a technical symposium on nuclear physics at Brookhaven National Laboratory which was held on November 10 and 11. BERNARD T. FELD and JOHN C. SLATER described complex neutron experiments.

Obituary

MARCELLA O'GRADY BOVERI'85, October 24.*

SIDNEY A. PARSONS'85, September 27.*

WILLIAM C. SMITH'86, May 25.*

GEORGE E. HOWE'89, August 26, 1948.

R. C. WALKER BUTTERS'90, September 30.

FRANCIS W. CROSBY'90, September 18.*

ANTHURNE W. LA ROSE'90, December 6, 1943.*

WILLIAM G. PLUMER'90, September 28, 1949.*

HERBERT T. SEAVEY'90, in July, 1942.*

JOHN R. BRITTAIN'93, July 10.

WILLIAM H. LAMBIRTH'95, August 10.*

ROBERT L. FULLER'96, October 18.*

NORMAN F. RUTHERFORD'96, September 26.*

WALTER T. CAMP'98, August 29.

WILLIAM C. FOWNES, JR.'98, July 5.*

DAVID E. GRAY'99, June 14.*

JOHN MAGEE'99, February 8, 1948.*

HUGH H. HANNA'00, in August, 1950.*

RALPH ROOT'00, September 5.*

ELISHA WALKER'02, November 9.

ROBERT G. LIVERMORE'03, September 20.

GEORGE A. BARNABY'04, May 10.*

HAROLD K. LOWRY'04, May 31.*

MARTIN A. O'CONNOR'04, December 25, 1944.

FRED W. GUIBORD'05, September 9.*

CHARLES W. JOHNSTON'05, October 24.

MORSE B. ASHMORE'06, September 23, 1949.

EDMUND S. CAMPBELL'06, May 8.*

EDWARD CHANDLER'06, May 31.*

CARL F. EDWARDS'06, in 1948.*

FREDERICO LAGE'06, April 2, 1947.*

JAMES S. PITKIN'06, August 15.*

CHESTER C. RAUSCH'06, May 21.*

MELINDA A. RHODEHOUSE'06, July 13.*

WALDO F. DAVIS'08, February 28.

CLIFTON C. CARTER'09, September 20.*

DELOS G. HAYNES'09, September 22.*

JOHN F. COOK'10, June 18, 1946.

MELVILLE F. COOLBAUGH'15, September 9.

HAROLD E. MORSE'17, October 22.

GARLAND LUFKIN'18, October 23.

JAMES B. LEARY'20, May 9.

SAMPSON BROWN'21, October 7.

F. LORENZ GEMMER'24, September 2.*

LYLE A. CLOUGH'24, October 25.

GEORGE E. LAMB'24, September 27.

HERBERT E. BUSSOM'25, May 29, 1945.

JOHN M. HENNESSEY'27, July 4.*

CHARLES G. JENKINS'27, in September, 1950.

JOHN G. DEEGAN'28, October 11.

PAUL C. SMYTH'31, June 7, 1948.

EDWARD R. LINKE'33, October 14.

RUFUS A. SOULE, 3d,'34, June 14.*

KENNETH E. KEYES'38, October 5.

* Mentioned in class notes.

News FROM THE Clubs AND Classes

CLUB NOTES

M.I.T. Boston Luncheon Club

The first of the monthly "Alarm Clock" luncheons at the Thompson's Spa Club Room was held on October 11 with approximately 30 men in attendance.

Ernest P. Neumann'38, Associate Professor of Mechanical Engineering, spoke on the "Use of Ultrasonics in Industry." He discussed the recent use of high-frequency sound for the elimination or reduction of dust and gas in industrial stacks and plants where they have heretofore been a source of danger or waste. Certain other still speculative experiments were discussed, along with an inquiry from Boston on the possibility of using ultrasonics to disperse pigeons from their normal roosting places. This last scheme, while having certain amoral undertones, was deemed economically impractical. — DONALD C. Goss'18, *Chairman*, 131 State Street, Boston, Mass.

The M.I.T. Club of Buffalo

The following officers were elected at a meeting of the board of directors on September 19: Matthew N. Hayes'36, President; Anton E. Hittl'36, Vice-president; Vladimir Hwoschinsky'40, Secretary-Treasurer.

James F. Patterson'36, one of the directors of the Club and a very active member, has been transferred to the Dallas, Texas, division of Linde Air. We are sorry to have Pat leave us but are pleased at his advancement. The M.I.T. Club of North-ern Texas is the winner here.

Plans were made for the fall and winter meetings which started with a tour of the Worthington Pump and Machinery Corporation, Buffalo plant, on October 24. A dinner dance was planned for December 1. — VLADIMIR HWOSCHINSKY'40, *Secretary*, 585 Crescent Avenue, Buffalo 14, N.Y.

M.I.T. Club of Central New York

The activities of the spring season culminated for the Club with a picnic for the Alumni and their ladies held at the home of Ted Simonton'24 on East Lake Road, Cazenovia, N.Y., on June 3. A unique feature of this gathering was the fact that a committee of the alumni wives acted as sponsors of the picnic by furnishing copious amounts of delicious salads, baked beans, rolls, cakes and coffee. The club members provided the remaining necessities for a successful outing; hamburgers, frankfurters, beer and soft drinks.

Approximately 25 couples joined in the festivities at the 100-year-old Simonton homestead. Although we received no co-operation from the weather, activities were

not permitted to flag for an instant. Several bridge and canasta games were under way before the picnic was more than an hour old, and the noncardplayers found other diversions such as keeping the pressure up in the keg, swimming and joining in the usual bull sessions.

President Harold Gray'16 brought the day to a happy close by delivering a brief talk in which he thanked the many alumni wives who had sponsored the outing and ended by predicting that in the future the Club would endeavor to hold more functions for the joint participation of the Alumni and their ladies. — LUKE S. HAYDEN'41, *Secretary*, 417 West Beard Avenue, Syracuse 5, N.Y.

The M.I.T. Club of Chicago

The Chicago Alumni finished the 1949-1950 season in high gear under the leadership of John Barriger'21. In May, 172 Alumni and guests enjoyed an inspection tour, dinner and lecture series at the Whiting Refinery of Standard Oil of Indiana. The entire program was extremely well planned and executed by a group of Alumni identified with Standard Oil — beginning with our own Bob Wilson'16, chairman of the board, and including Bob Gunness'34, Dan Barnard'21, and many others who acted as hosts, lecturers, and guides. The management of this trip set high standards for a plant visit of this kind.

The final get-together of the season was a luncheon meeting at the Bismarck Hotel where an election of officers took place; and with appropriate ceremony, John Barriger'21 turned over his gavel and robes of office to his worthy successor Stan Humphrey'28, who will be our president throughout the 1950-1951 season. The other officers elected are: Bob Gunness'34, Vice-president; Phil Coleman'23, Secretary; Bob Meissner'43, Treasurer. The directors are Al Mulliken'32, George Wallis'09, Louis Metz'23, Dick Meyer'42, John Praetz'28, and Elisha Gray'28. The Alumni Fund Committee is headed by Sherry O'Brien'17, the Placement Bureau by Jim Newman'37, and the Scholarship Fund by Ed Farrand'21.

The 1950-1951 season is starting with a bang. On October 5, 240 men turned out for dinner to welcome Dr. Compton and Dr. Lewis. It was an excellent party, and much of its success was due to the able dinner committee headed by Bob Wise'28, and Dick Meyer'42, in co-operation with Otto Eitel'24, managing director of the Bismarck Hotel. — PHILIP L. COLEMAN'23, *Secretary*, 208 South La Salle Street, Chicago 4, Ill.

Detroit M.I.T. Association

The Association held its first meeting of the 1950-1951 season on October 3 at the Detroit Boat Club. We were fortunate to have Dr. Compton meet with us and

speak about Institute affairs, including the fund-raising campaign; although the main part of his talk dealt with the subject, "Problems Facing Our Educational Institutions in the Present World Crisis."

Our guests on this occasion included Stanley S. Kresge and Howard E. Baldwin of the Kresge Foundation; James E. Zeeder and A. M. Fleming of the Chrysler Corporation; James N. Crawford of General Motors; Oscar Weber and James J. Weber, Jr., representing the Ford Foundation; Robert Semple'32 of the Wyandotte Chemical Company; and Harold Howe, western director for the M.I.T. fund drive.

B. E. Hutchinson'09, chairman of the Finance Committee of the Chrysler Corporation, served as toastmaster for the occasion, and called upon Mr. Kresge and Mr. Baldwin to say a few words relative to their reasons for having made the generous donation of \$1,500,000 to the M.I.T. Development Fund. Mr. Kresge paid a fine tribute to the Institute and its work, as well as an excellent personal tribute to Dr. Compton for his fine leadership in Institute affairs.

We of the Association were all very pleased to see Dr. Compton again and to have him meet with us after an absence of four years. There were approximately 100 Alumni and guests in attendance, and the excellent roast beef dinner was preceded by a social hour during which members and guests had an opportunity to renew acquaintances and work up a good appetite for the dinner.

Tentative plans have been formed for a second meeting to be held on December 12 at which time John F. Gordon, Vice-president in Charge of Engineering for General Motors, has agreed to speak to us briefly preceding the General Motors Parade of Progress Show. This show is being put on all over the country and should prove extremely interesting from a standpoint of illustrating some of the more recent scientific developments and their application to our everyday or military needs — TREDICK K. HINE'16, *Secretary*, Chrysler Corporation, 341 Massachusetts Avenue, Highland Park, Mich.

The M.I.T. Club of the Lehigh Valley

For a second time, the Club made its annual dinner meeting the occasion for ladies' night. Approximately 40 members and guests met at Cascade Lodge, Kintnersville, Bucks County, Pa. Door prizes were awarded after the dinner.

The following new slate of officers were chosen: Michael V. Herasimchuk'39, President, one-year term; George Farnell'41, Vice-president, one-year term; Arthur F. Gould'38, Treasurer, three-year term; Edward Adams Richardson'19, Secretary, three-year term. Three new members-at-large of the executive committee were

chosen for two-year terms: Hugh H. Brennan'25, Louis A. Wilson'14 and Basil W. Parker'33. The other three members-at-large of the executive committee, chosen last year for two-year terms, are Edmund J. Flynn'19, Paul V. Cogan'13 and George F. Halfacre'18.

Entertainment for the group was furnished by Fred Slater, orchidist, in a comprehensive talk fully illustrated with photographs in color dealing with the changes in a garden and nearby places throughout the year. In view of Mr. Slater's interest in orchids, he gave a detailed description of the work involved in growing them. To one not a flower fancier, the varieties of common flowers and their hybrid variations were decidedly bewildering. Certainly, a great deal of real beauty and much information was afforded us. — EDWARD ADAMS RICHARDSON'19, *Secretary*, 1133 North New Street, Bethlehem, Pa.

The M.I.T. Club of New York

On October 5 the Fall Smoker more than lived up to its expectations — more than 30 fellows had to stand up in the hallway entrance to watch the fun. As advertised, there were no "speeches." George Dandrow'22 was loudly heckled as he first "introduced" Joe Littlefield'17, Club President, and then "called upon" Lobby to defend himself (verbally and deftly accomplished). So when Dandrow explained that we were honored with the presence of a former high executive of the Atomic Energy Commission, it took all of George's volume to drown out the objections and get Dr. Blah of the University of Chicago on his feet. Once on his feet, Dr. Blah startled the crowd with amazing statements of double talk and passionate harangue. He brought down the roof! When the laughter had died down, George introduced him in his true role — that of a radio and television performer and associate of Milton Berle.

One hundred and thirty-five Alumni attended the dinner preceding the Smoker at the Club. Another 110 Alumni arrived for the Smoker itself. At this rate, the Club has already about outgrown its present quarters, and faces a "Standing Room Only" problem.

In an effort to introduce everybody and make names easier to remember, each alumnus wore a name and class numeral badge. Badges were on hand ready for all our members, and nonmembers filled out their own badges on arrival. A more friendly atmosphere was noticeable and badges were collected and saved for use at the Steak-Stein Dinner.

In September, the Club published its *M.I.T. in New York* newsletter and mailed it to all of the 6,000 Alumni in the Greater New York area. Chairman, and largely responsible for its appearance, is Ralph Wilts'41. His Publications Committee is composed of David Jealous'44, R. A. Markey, Jr.'41 and M. R. McGuire'41. Rumor has it this committee is searching for new material for a winter publication.

December 8 is the new Midwinter Party date. Currently planned as a social evening, an orchestra and buffet supper are the "lures" for all Technology men to

persuade their wives to arrange for sitters and come to the party. — G. PETER GRANT, JR.'35, *Secretary*, Grant Photo Products, Inc., 401 Broadway, New York, N.Y.

M.I.T. Club of Schenectady

Since the last writing, the Club has had two luncheon meetings. At our September 19 meeting, we were honored to have T. R. Rhea'24 talk to the Club on "Displaced Persons." Mr. Rhea has taken an active part over the past several years in helping new arrivals in this country secure employment and living facilities in and around Schenectady. He described the activities of sponsors who are private citizens of this area with an interest in displaced persons. The talk was enthusiastically received by the 23 members present at this meeting.

On October 17 the Club attempted a new type of served luncheon meeting at Ferro's Restaurant. The turnout for this meeting indicated that our membership approved wholeheartedly. William Efner, city historian, delivered a most interesting account of Schenectady's growth during the 19th Century at this meeting. Another feature of the meeting was the presence of Miss L. Hunt, secretary of Course VI-A at the Institute. Miss Hunt, well known to many of our Alumni, was presented by President Will B. Rodemann'44.

Present at the meetings were the following Alumni: J. B. Taylor'97, F. W. Grover'99, R. C. Robinson'01, Andrew Vogel'13, P. M. Currier'14, P. L. Alger'15, E. H. Bancker'18, H. W. Bibber'20, F. F. Buckland'20, T. R. Rhea'24, G. P. Tarleton'25, B. S. Weaver'25, A. de H. Hoadley'26, W. O. Bachli'33, C. F. Barrett, Jr.'34, R. W. Newman'36, L. G. Peterson'36, Harold Chestnut'39, C. C. Lawry, Jr.'39, W. D. Vincent'39, G. M. Ketchum'41, R. W. Mayer'41, J. H. Macleod, Jr.'41, R. H. Simon'41, R. W. Stanhouse'41, R. W. Austin'42, A. A. Root'43, H. E. Harris'44, W. B. Rodemann'44, D. B. Harrington'44, E. S. Lawrence'47, G. H. Oliver, Jr.'47, A. M. Varner'47, Francis Brown, Jr.'48, L. F. Coffin, Jr.'49, D. D. Adams'50, Laurence Mcpheeters'51 (VI-A).

Recent committee appointments have been made by President Will Rodemann'44. They are: Cochairman, Scholarship Committee, C. F. Barrett, Jr.'34; Chairman of the Social Committee, E. S. Lawrence'47. A meeting was held on October 12 with Harry J. Linton, superintendent of schools in Schenectady, to lay out plans for scholarship work this coming year. In addition, the Civic Projects Committee is to continue its work with the Department of Education as well as the Education Committee of the Chamber of Commerce on the means of financing the Comprehensive High School to be built in Schenectady. — EDWIN S. LAWRENCE'47, *Secretary*, General Electric Company, Building 99, 1 River Road, Schenectady 5, N.Y.

M.I.T. Club of Southern California

The completion of the new directory has been delayed by the absence of Chairman Bud Golsan'34 on an eastern

business trip so from now on the progress should be accelerated. Approximately 30 more advertisements and gifts are necessary in order to let the contract. The response has been very good and quite a few new names will appear among the ads, with approximately 400 names of Alumni that do not appear in the 1946 edition. The arrival of Dale Patrick, first child of Stanley'44, advertising manager for the Club's directory, has been recently announced.

On a recent trip by the Secretary to the Los Angeles County Museum, a large sign was noticed over the front door where a new façade is being erected, "Sumner Spaulding, Architect." Also on the trip arranged by the "Los Angeles Beautiful" division of the Chamber of Commerce to view the best examples of architecture, Spaulding'16 has two buildings — the Lucien de Long at 3251 Wilshire Boulevard and one of the four "Castles in the Air" in San Fernando Valley at Sepulveda and Royal Oaks. — A file of *The Review*, from 1914 on, has been offered. Anyone interested may contact the Secretary; and anyone having files that they wish placed where copies will be of value should write to Beebe at once or telephone Granite 9572.

Every Alumnus in this area who has a Beaver ring has told of many interesting contacts made by someone seeing the ring. Full information is now available for those not having rings; and what better gift can a good M.I.T. wife make to her better half at Christmastime? The Secretary has a ring card and will be glad to send in any orders — no charge if 1950 dues have been paid. The Technology Store has also kindly sent samples of M.I.T. stationery at very reasonable prices; and, although the time may be short, if Alumni in this area wish Christmas cards with Technology emblems, these can also be secured.

As this is the last issue of the year, the Secretary wishes to thank all who have assisted in this year's operations, including specifically those who have subscribed to the directory, paid dues and made so many helpful suggestions. May their Christmas be merry and the New Year most happy. — HIRAM E. BEEBE, *Secretary*, 1847 North Wilcox Avenue, Hollywood 28, Calif.

M.I.T. Club of Venezuela

We take pride in reporting the enthusiastic collaboration of all those present at the first meeting of the young club in Venezuela on the occasion of an organization banquet held in the Hotel Avila on the night of July 21. The following were present: Francisco Acevedo Quintana'46, Whitney Ashbridge'26, Carlos Bethencourt'48, David Dario Brillembourg'47, Diego C. Carbonell'45, Melchor Centeno V.'30, Enrique José de Majo'45, Gabriel Disario'28, Atahualpa Dominguez'46, James Edward Dorris'38, Ivan A. Koves Dvorak'47, Felipe Michániz'43, Luis Guillermo Jiménez Michelena'41, Victor Manuel López'36, Oscar Augusto Machado, Jr.'43, Guillermo Machado Mendoza'46, John W. Matthews'44, Teniente Armando Medina'47, Ely Mencher'38, Gerald Alexander O'Connor'29, Néstor Eduardo

Pérez'46, Hugo Pérez La Salvia'45, Alfredo Rodríguez Delfino'44, Walter Vernon Skees'33, Juan Andrés Vegas'45, Guillermo Zuloaga'30, and Ricardo J. Zuloaga'42.

As soon as the festivities were well under way, a board of directors was chosen with the purpose of developing more intimate bonds among the members themselves and with the alma mater, our beloved Institute of such pleasant memories. This board is made up as follows: President, Guillermo Machado Mendoza'46; Vice-president, Gerald Alexander O'Connor'29; Secretary, Felipe Echániz'43; Treasurer, Francisco Acevedo Quintana'46. For the purpose of drawing up bylaws to govern the activities of the Club, a committee was formed, made up of Hugo Pérez La Salvia'45, Alfredo Rodríguez Delfino'44, Francisco Acevedo Quintana'46 and Enrique de Majo'45. This committee will have charge of the preparation of the rules and regulations of the Club and presenting the results of its labor at the next meeting.

Whitney Ashbridge'26 made a very clear outline of the financial requirements of the Institute, explaining that our graduates have always received vastly more than they pay as tuition, which, of course, covers only a fraction of the actual expenditures; so that each alumnus is in duty bound to contribute so as to make it possible for new students to continue to receive the same advantages. Felipe Echániz'43 followed with a brief exposition of the needs regarding new equipment, laboratories and buildings; extremely vital if we want to see M.I.T. maintain the pre-eminent position it now occupies. Gerald O'Connor'29 proposed that the quota of the Club be set at a minimum of \$100 per year, and Guillermo Machado Mendoza'46 added that with the funds already accumulated and those arising from future subscriptions, an effort be made to establish a scholarship for the support of a worthy student at the Institute. Both motions were carried unanimously.

The meeting continued until after midnight when some of the younger members gave evidence of their musical ability and decided to form an orchestra directed by Enrique José de Majo at the piano, with Melchor Centeno, mandolin; Hugo Pérez La Salvia, singer; Ivan Koves Dvorak and David Darío Brillembourg, bongos; Néstor Eduardo Pérez and Guillermo Machado Mendoza, maracas; and Armando Medina, cacho y clave. — FELIPE ECHÁNIZ '43, Secretary, Frederick Snare Corporation, Edificio La Bolsa, Aptd. 1647, Caracas, Venezuela.

CLASS NOTES

• 1885 •

Sidney A. Parsons, born in Gloucester, Mass., on July 3, 1863, passed away at his home in Manchester, Mass., on September 27, 1950. He was employed in waterworks construction in Beverly,

Frankfort, Ind., and in railroad work in Kansas City. He served as assistant city engineer of Duluth, Minn., from 1887 to 1891 and for the next six years aided in the pioneer development of Everett, Wash. In 1897 he returned to a post with the Massachusetts Highway Commission, forerunner of the public works department. He was employed first as a resident engineer, later as a district engineer, and then handled contract specifications. He retired after 36 years of service in 1933, at the age of 70 years. Sid was a companionable fellow and popular with all. He was a faithful attendant at all class reunions, big and little.

I have just seen a newspaper notice of the death on October 24, 1950, of Mrs. Theodor Boveri, nee, Marcella O'Grady. She was the only woman of our Class to complete the full four years and graduate. I have received the following information from a friend of hers: "After Mrs. Boveri's graduation from M.I.T., and graduate work at Johns Hopkins, she taught at Bryn Mawr College in Pennsylvania and in 1889 became professor of biology at Vassar College. In 1897, she left Vassar to marry the famous zoologist, Theodor Boveri. Professor and Mrs. Boveri were close friends of Roentgen, the discoverer of X-Ray, and his wife. They spent many vacations working together at the International Zoological Station at Naples. Just before his early death, during World War I, Professor Boveri was appointed head of the Kaiser-Wilhelm Institute in Berlin-Dahlem.

"In 1926, Mrs. Boveri returned to this country and became professor of biology at Albertus Magnus in New Haven, where she again built up a strong department and was closely connected with the work at Yale. She retired in 1942 or 1943. Mrs. Boveri has a daughter, Dr. Margret Boveri, a distinguished journalist living in Berlin, who has been unable to visit her mother because she cannot obtain a visitor's visa. She lives in the American Zone. Mrs. Boveri has been confined to bed for the past four years."

As far as advised, the following members of the Class are still living: Fred E. Bedlow; Arthur K. Hunt; James L. Kimball; Richard S. Lull; Hugh MacRae; Herbert G. Pratt; George P. Vanier; Charles M. Wilder and Erastus Worthington. Specials: Eliza Prentiss Huntington, alert; Andrew Granville Pierce, ill. Not bad, considering that all are over 85 years of age! — ARTHUR K. HUNT, Secretary, Longwood Towers, Brookline 46, Mass.

• 1886 •

The Secretary has received word from John W. Killinger, S.M.A.'86, Course II, that his address has been changed from San Francisco to 458 Coombs Street, Napa, Calif. It will be remembered that the Secretary reported him as having been hit by an automobile in April 1948, and after hospitalization going to stay with his son, John, Jr., at Napa, Calif. Apparently, he has made his permanent home in Napa as the address given is not that of his son. He promised to write as soon as he recovered, but so far there has been no word except from his son who reported that

there had been much improvement in his father's condition.

Word was received from the Alumni Secretary that William C. Smith, S.M.A.'86, living at Bridgton, Maine, died in May, 1950. The word came through a Mrs. Ivers, 12 Greenleaf Circle, Lynn, Mass., to whom I wrote for details. She replied as follows: "Mr. Smith passed away May 25, 1950. He was in failing health for four years and confined to his bed for eight months, being a great sufferer from neuritis and other complications." The letter was signed, "Mr. Smith's sister, Ida M. Ivers." From Mr. Charles H. Herrick's account of the '86 S.M.A. members published in 1944, I note: "William Clark Smith, Bridgton. Born April 28, 1868 at Brighton, Mass. Married Aug. 15, 1889. Four children. From 1892 to 1944 with but few breaks as Broker and Real Estate Dealer he was associated with various mining enterprises and in '41 organized and incorporated the Mono Molybdenum Company operating in California." His dates 1868-1950, his age 82 years, suggest that Mr. Smith must have been one of the youngest members of our affiliated classes of '86. In 1948 he wrote to me from Bridgton; sometime after that he must have gone to live with his sister.

There seems to be nothing else to report about the activities of '86 Alumni, so a few words about the secretary's activities may help to fill in the vacancy. He has been living quietly at Island Creek, employing his time in overseeing repairs and repainting of the old mansard-roofed farmhouse and big barn now used as a garage, and doing odd jobs in the old shop now used as a place for lathe and tools where he can turn out a handle for a utensil or repair a chair or garden rake if needed. The apple and pear trees have been bearing plenty of fruit and Mrs. Chase has tried to make a cook of him in preparing preserves. His most successful effort in this direction is in lettering the jars and jelly glasses (at which he admits he is quite proficient). After nine years of driving a two-door, 1941 Nash Ambassador Six, he has turned it in for an Oldsmobile 88 of the 1950 vintage with Hydra-matic Drive and radio and four doors! As Mrs. Secretary has driven her brother's Oldsmobile with Hydra-matic Drive, she took to the change in equipment like a duck to water. The Secretary, however, must accustom himself to having an extra foot with nothing for it to do, and so is considerably slower in feeling at home with the new car; but by the time these notes are printed, he may be acclimated or singing among the angels! — ARTHUR T. CHASE, Secretary, Post Office Box 4, Island Creek, Mass.

• 1890 •

Reporting further on our 60th anniversary, the following notes are from letters from those unable to attend. From Seattle, Wash., Charles Alden wrote: "I am still alive and in business as an architect with ability to do all that I suppose should be expected of me as a veteran 82 years old, having borne the strain of participating in the building of two expositions; the Alaska Yukon Pacific in Seattle in 1909

and the Panama Pacific in San Francisco in 1915. I also served in World War I and am a colonel on the officers honorary retired list. I have accomplished something in civic affairs." Albert Brown, now living in Malden, Mass., wrote that because of a heart ailment and arthritis he "cannot walk more than 500 feet without resting." Ernest Conger, from Olive, Calif., writes that he went from Iowa to the Pasadena National Bank in 1897 and says: "During two years there I carried \$2,000,000 in \$20 gold pieces (in a satchel) between Pasadena and Los Angeles. I was not armed or bonded. I was never threatened and never lost a cent. I traveled by railroad from Pasadena and by streetcar in Los Angeles, a total distance of approximately 10 miles. I married and bought 52 acres, then worked 15 years in Los Angeles. I am now residing on my orange grove, the Hacienda del Rio, and raise from 6,000 to 10,000 boxes of Sunkist oranges a year."

Will Creden wrote from Butte, Mont.: "During almost 50 years I have lived in a mountainous outpost, I have seen only four '90 men. I have had an active life. Monotony and lack of interest never figured in it. Aside from 30 years underground as engineer, superintendent, and manager, I have found time to carry the torch in the Northern Rockies as chairman of the Montana Alumni Association for many years." Pierre du Pont wrote in February: "If my courage does not forsake me, I shall be present at our 60th. However, as I have not been as far as New York for three years, you will realize that traveling is not my chief occupation nor inclination. I am in good health and hope to remain so for another 10 years in order to accomplish some of the things that I should like to do, but at 80 one does slow up in an unexpected manner. It is now almost 30 years since I retired (?) from active business with the Du Pont Company, but as both of my former contemporaries have passed on, I am kept quite busy at the job of telling tales of the past, as well as attending meetings of our Finance Committee."

At Rochester, N.H., L. B. Holmes wrote that he was "trying to recover from a hospital operation." From Bass River, Mass., Lois Lilley Howe, who took the two-year course in Architecture, writes that she "came in with the Class of '92 but graduated with '90 and considers herself a hybrid." She went abroad for 15 months, finally got a commission to build her first house, and by 1900 had an office in downtown Boston. Here she developed her flair for remodeling houses and her interest in colonial architecture, for which she has become famous. Later she also built the cafeteria at Devens, the art center at Concord and one at Fitchburg. The only woman Fellow of the American Institute of Architects, she has occupied many prominent positions and, incidentally, has been president of the Cambridge Plant Club, the oldest garden club of America, and vice-president of the Cambridge Historical Society. John Mead Howells writes: "I am not really a Technology graduate. I was a freshman with the class of '90 but then went to

Harvard and to the Beaux Arts in Paris. I greatly valued my short time at the Institute, and I now venture to put in the mail a pamphlet-album showing some of my work." The pamphlet-album is a collection ranging from a design for a cover for *Harper's* magazine to many fine Park Avenue, New York and country residences, the Panhellenic Tower in New York, the Tribune Tower in Chicago, and the Greater Los Angeles Unified Terminal. Certainly M.I.T. can be proud to have supplied the foundation for such achievement.

Ernest LeSueur, after making early reservations, finally wrote from Ottawa that he was "not going to be up making the trip to Boston." He says, "I have been quite retired for some time. Actually, my electric work was mainly electrochemical. I also developed a solvent for the fraction of one per cent of copper that passes the concentrating tables at Calumet, which the Calumet bought; and developed and patented (but unfortunately only in Canada) the modern process of extracting oxygen from the air. I also did some very amusing work on acetylene and a great deal of work on utilizing war-residue explosives from World War I. Among other things, this included grinding cordite underwater in large quantities." Harry Noyes from Niagara Falls wrote: "I am not very steady on my pins, so I had better not try to come. In 1898 after working at Niagara Falls with the Niagara Construction Company and the Niagara Falls Power Company, I became connected with the Union Carbide Company and continued with them and their successors and affiliated companies as chief engineer until I retired in 1938." Harold Roberts, from Tucson, Ariz., writes: "I am still educating my 5th and 6th children. I have been blessed with good health, my strength has fallen off a little, but my appetite has not. Regarding my contracting episodes consisting of many private residences, many churches, dams, and bridges and one or two '4 holders,' from 1920 to 1929 we plunged into theatres, built three in Brooklyn, and obtained long-term leases, which held our heads well above the surface throughout the depression at the time F.D.R. took up the reins of government."

Arthur D. Ropes was still confined to the house, several months after being in the hospital for 13 weeks. Willis Whitney wrote from Schenectady, N.Y.: "Although I have reserved room at the Parker House, I feel certain I shall give up the 60th. Call it by its right name, it isn't sickness but is senility, but of a funny kind. After about killing myself by reading, indigestibly, about all the different religions of the still wicked world, I call them all wrong. So I finally gave up trying to understand such things and began a few weeks ago to read (not to work) in the field of enzymes. To living matter (of which we hold perhaps a leading place) there is nothing in sight quite so important as growing better, either physically or mentally by improved metabolisms. I am too old to do a darn thing about it, but I have a right, a freedom, to learn about such an infinitely complicated sub-

ject. My faith is that man will slowly learn truths and perhaps the very slowness is some sort of a safety device. Anyway, I am going to stay at home this time and go on reading modern stuff." Which leaves us with a feeling that Willis' absence was a tremendous loss.

Francis Wyman Crosby died of a heart attack on September 18, 1950. He was with us in the full vigor of life at our 60th, and the Secretary bears witness that the wonderful voice with which he "sang his way through Technology," was still wonderful. He was a partner and chief designer in the architectural firm of Hubbell and Benes for 31 years, then retired, but on the death of his wife in 1940 resumed participation. From 1928 to 1930 he was in Moscow in charge of design and construction of a large manufacturing plant and adjoining city for the Soviet Government. From the *Cleveland Plain Dealer* we copy the following: "Before coming to Cleveland he had been associated in the architectural profession in Boston and New Orleans. He designed the Cleveland Museum of Art, the Ohio Bell Telephone Company, and the Masonic Temple and other buildings. He was a member of the American Institute of Architects; also long a member of the Orpheus Choir. He made the trip with it to Wales, where it won the Eisteddfod in the 1930's."

Three more deaths were brought to light by our meeting notices. An unsigned letter on the back of one states that: "Colonel Anthrène W. La Rose (also a Course IV man) died December 6, 1943. He served as Assistant State Architect for the State of New York, also in the Adjutant General's office of New York State, was Captain in the Spanish American War. He retired in 1909 due to complete loss of eyesight. He served as Vice-president of the Albany Association for the Blind and was Chairman of the Board of New York State Commission for the Blind. He was survived by his daughter, Mrs. Charles M. Levins of Albany." W. G. Plumer of Cleveland, President of the Plumer Leather Company, who likewise took Course IV, died on September 28, 1949. Herbert T. Seavey, who was listed at 50 State Street, Boston, and at Stoughton, Mass., in 1912, passed away in California in July, 1942. We have no further information about either of the last two. — GEORGE A. PACKARD, *Secretary*, 53 State Street, Boston 9, Mass. CHARLES W. SHERMAN, *Assistant Secretary*, 16 Myrtle Street, Belmont 78, Mass.

• 1895 •

We regret to report the passing of William Henry Lambirth, Technology 1891-1892, at his home, Bentleyville Road, Chagrin Falls, Ohio, on August 10, 1950. Many of our mates will remember Bill Lambirth, as the son of our once beloved and revered instructor in forging, James R. Lambirth. While William Lambirth was with our Class for two years, he prepared for teaching all branches of industrial work and mechanical drawing. For 27 years he was associated with the Central High School, Cleveland, Ohio. Bill was quite a singer, directing the boys' glee club, and an enthusiastic member of

the barber shop quartettes. During the wars he was finding positions for, and training crippled soldiers. He was supervisor of mechanical training in the Academic High School of Cleveland for a period of six years. During his later years, he spent most of his time at his home in Chagrin Falls. — LUTHER K. YODER, Secretary, 69 Pleasant Street, Ayer, Mass.

• 1896 •

Your secretarial staff pauses momentarily in the football and Korean activities to greet you and offer the following. First of all, this interesting letter from Bill Haseltine, 223 Marguerite Avenue, Corona del Mar, Calif.: "As you can see from the above address, we are still in California although I retain my legal residence and home in Wisconsin. However, with my family scattered all over the globe, there is no use of our attempting to live back there when we can be so much more comfortable here.

"I have just returned from Peru where my daughter's husband is chief surgeon of the Cerro de Pasco Copper Company at La Oroya in the high Andes. It is a bleak country and, outside of Lima which is a beautiful city, I would not give a plugged nickel for the whole country. We went down by freighter from Los Angeles and had a delightful, leisurely trip of a month and had expected to return the same way. But, unfortunately, Mrs. H. had a serious intestinal disturbance and I had an attack of pneumonia and the doctors ordered us to come back by plane. My younger son (Harvard '36) is at present resident physician at the New York Eye and Ear Infirmary in New York while my elder, William R., M.I.T. '34, is working as a scientist in the design and development of new weapons at the Naval Ordnance Test Station, Inyokern, Calif., so that we see him occasionally. He is one of those who helped develop the new rockets now being used with such effect on tanks in Korea."

Another classmate, the late Eugene C. Hultman, who made a great record for public service, has received posthumous honors for his administrative as well as engineering skills. The recent addition to the Metropolitan reservoirs, the "Hultman" aqueduct, will supply millions of gallons of water to the overall Greater Boston water supply. Again, we salute another distinguished classmate: "Wendell R. Bauckman, president of the Newton Board of Aldermen who represented Mayor Theodore R. Lockwood, said 'the new aqueduct speaks volumes for the M.D.C. The M.D.C. engineering and planning in this project has stopped any possibility of drought or shortage of water in this area such as plagued New York and other cities,' he declared. The new aqueduct runs from Weston to Chestnut Hill and is approximately 10 miles in length. Chairman Morrissey turned the valve which will admit water from the Quabbin Reservoir to the Greater Boston area at the rate of 250,000,000 gallons a day. The water will pass through a rock tunnel 450 feet below the city of Newton to join with another link of the system at Chestnut Hill."

It is with much regret that the Secretaries pass on the following news from Mrs. Rutherford: "... Norman F. Rutherford passed away peacefully in his sleep on September 26, 1950. He was perfectly well and happy and went off to bed as usual and so his sudden passing came as a great shock to all." Rutherford was one of the classmates who attended many of the reunions and he will be missed by all of us. Your Secretaries have written a note of sympathy to Mrs. Rutherford. I think she would appreciate a word from any member of the Class. Her address is: "Cap-pares" 87 Holdsworth Street, Woollahra, N.S.W., Australia.

Another sad note in our column this month is the news of Robert L. Fuller's death on October 18 at his home, 83 Brattle Street, Worcester, Mass. He had retired in 1942 after being associated with the former architectural firm, Fuller and Delano, for 45 years. He is survived by his wife, Mrs. Luella Morrow Fuller, two daughters, two sons, and seven grandchildren.

NEW ADDRESSES: Winthrop H. Chenery, 516 East Andover Drive, Burbank, Calif.; William M. Andrew, 518 East Fulton Street, Celina, Ohio; Elizabeth P. Hamlen, 35 Beacon Street, Boston 8, Mass. — JOHN A. ROCKWELL, Secretary, 24 Garden Street, Cambridge 38, Mass. FREDERICK W. DAMON, Assistant Secretary, 275 Broadway, Arlington 74, Mass.

• 1897 •

George R. Wadleigh writes that on returning from a drive down into Maine he and his wife stopped at Franklin, N.H., and called on Jere Daniell and his wife at their beautiful home on Webster Lake. Visiting there were E. E. Pierce '99, of Bath, Maine, with his wife and her sister. Mr. Pierce is a Course XIII man and as George worked in a shipyard in 1899 he deemed himself qualified to discuss naval and marine matters with Jere and Mr. Pierce. George states that they quickly settled the size of the Navy, all questions of Naval aviation, what would rehabilitate our Merchant Marine and a few other simple matters.

George is quite active in the Technical Association of Pulp and Paper Industries, and in connection with his work attended in early October a convention of the Association held in Cincinnati. While there, he called Harry Pugh by telephone and arranged for a dinner meeting the next day. The next day George was called by Harry's son who said that his father had experienced a slight attack of illness shortly after the telephone conversation with George and had been taken to the hospital. Before leaving Cincinnati, however, inquiry developed that Harry was distinctly better. We suggest that some of the Class write to Harry and that he would greatly appreciate such letters. His address is: A. H. Pugh, A. H. Pugh Printing Company, 400 Pike Street, Cincinnati, Ohio.

No doubt many '97 men as well as many other men are inwardly, at least, protesting against the high price of men's clothing, and they will probably have in the near future additional reasons for

such protests. Walter Humphreys, as secretary-treasurer of the National Association of Wool Manufacturers has prepared a report on wool prices for submission to the New England Council on its 25th anniversary. This report cites the increase in wool prices, increases in textile employees' wages, shorter hours of labor without reduction in pay and other factors that all serve to raise the price of the finished article of clothing.

As instances of these factors he lists the cost of wool last August being \$2.56 a pound or 75 cents a pound higher than in February, the domestic wool clip falling in the past few years with the dropping of sheep population from 56,000,000 to 32,000,000, average work week reduced from 53 hours to 40 hours, average hourly wage increased from 50 cents to \$1.32, and so on. He reports that due to the reduced number of sheep being raised with the resultant lower wool clip, 61 per cent of the wool processed in the United States must be imported, largely from Australia. We are glad to know, Walter, the whys and wherefores of this high price of clothing business, but about all that we can do is to decide to make that old suit of ours go for another year, at least. — JOHN A. COLLINS, JR., Secretary, 20 Quincy Street, Lawrence, Mass.

• 1898 •

Here beginneth the story of Dave Fenner, as related in the 19th Annual Mail Away Edition of the Falmouth, Mass., *Enterprise* of May 26, 1950, under the caption: "Retiring to Home at the Moors David C. Fenner Will Write of Auto Industry in which He Was for 50 Years a Leading Figure":

"A horse could have done it faster," said David C. Fenner of the Moors as he recalled his introduction to automobiles, a 25-mile race at the Rhode Island State fair in 1896. He rode as mechanic for A. C. Ryker, whose car won the race and \$1,500 prize in a field of two electric cars and three gas buggies. Their time for the fastest mile was two minutes 14 seconds, about 28 miles an hour. "That was the Heat," Mr. Fenner said, "when one of our driving sprockets came loose. I got down on the floor and held it out of the wheels with a floorboard. It was a nervous business."

"Automobiles looked promising to Mr. Fenner, although the industry was still in its infancy. He thought there was a future in them. Except for five years with Bethlehem Steel, when he was analyzing alloy steels for automotive use, he has been in the highway transportation industry ever since. He has just retired as vice president of the Mack Truck company, with which he was associated 39 years.

"Technical courses at the Sheffield School of Yale University and . . . Technology gave Mr. Fenner the background for the production end of the business. After five years with Bethlehem he came back to New England to join the Knox Automobile company. . . . In 1910 he went with the Alden Sampson works at Pittsfield as sales manager of the truck division. He was there a short year, as the company was absorbed into the

United States Motor company, an attempt at a merger which was to rival General Motors. It was as head of the motor fire apparatus division that Mr. Fenner joined the Mack Truck company. The fire equipment field was a new one for the company, which was then rapidly expanding.

"Service with the War Industries Board under Bernard Baruch took Mr. Fenner from his duties with the Mack company during the first World War. The war brought tremendous expansion to the trucking industry. . . . When the Germans made use of mustard gas, he was deep in production of 'degassing' outfits. . . .

"At the approach of the second World War, Mr. Fenner, by then vice president of the Mack company, was in a conference of manufacturers called by William S. Knudsen, which led to establishment of the Office of Production Management. Later he was with the War Production Board working on industrial allocations." (To be concluded in a subsequent issue of The Review.)

Through the courtesy and co-operation of the Alumni Office, we have a clipping from the *Sun Telegraph* of Pittsburgh, Pa., edition of July 5, 1950, giving information concerning our classmate, W. C. Fownes, Jr.: "William C. Fownes, Jr., 72, noted steel mill builder and world-renowned golfer and links expert, died of a heart attack yesterday in his home, 1037 Hulton Rd., Oakmont. His death came suddenly while he was convalescing from an operation which he underwent May 26. Mr. Fownes, who retired from active business in 1930, combined rare engineering skill with top-grade golfing ability. He won the National Amateur Championship in 1910, was twice captain of the American Walker Cup team, and was twice elected president of the U. S. Golf Association. Since his retirement, Mr. Fownes alternated between his Oakmont home and one in Pinehurst, N.C.

"The son of the late H. C. Fownes and Mary Moore Fownes, he was born in Chicago. . . . His father, one of Pittsburgh's early industrialists, was associated with William Clark & Sons, the firm which built the first mill at the Homestead Steel Works. Mr. Fownes entered business with his father after graduating from Shady Side Academy and . . . Technology. During his career, Mr. Fownes and his associates built the Reliance Coke Co., Brownsville; the Standard Seamless Tube Co. at Ambridge, and the Midland Steel Co., later sold to Crucible Steel Co. He organized the Shamrock Oil & Gas Co., Amarillo, Tex.

"A strong competitor, Mr. Fownes reached golfing heights greater than any Pittsburgh golfer. He qualified in every National Amateur Championship tournament from 1901 to 1927, taking the top prize in the 1910 tournament at Brookline, Mass. He was medalist in the National Amateur Championship at Merion Cricket Club in 1916 with a score of 153. He was named captain of the All-American team which defeated the All-Canadian team in 1911. At a meeting of Britain's most famous golfers in 1926, Mr. Fownes was made a life member of the historic Moles Club of Lon-

don. To his national and international honors, he added many state amateur and open sectional championships and his links contests with E. M. Byers of Allegheny Country Club are legendary in local sports history. Mr. Fownes and friends formed the old Highland Country Club, the predecessor of the world-famous Oakmont Country Club. Under his guidance, the Oakmont course became known to many as the world's stiffest golf test.

"A collector of antique furniture and silver, Mr. Fownes, though retired, continued to serve as director of the Farmers Deposit National Bank, the Bird Coal Co. and the Keystone Portland Cement Co. He was a member of the Duquesne Club and the Royal and Ancient Golf Club, Scotland. Mr. Fownes is survived by his wife, Mrs. Sara Parker Fownes; a daughter, Mrs. Roland MacKenzie of Cockeysville, Md; a sister, Mrs. Otto C. Tomec of Trenton, N.J.; a brother, C. B. Fownes, Oakmont, and seven grandchildren. A son, H. C. (Heinie) Fownes II, died two years ago."

Our distinguished classmate, Roger W. Babson, is constantly in the news all over the country. From many articles, we have culled three for this issue. A picture of Roger smiling happily — goatee, bow tie, white shirt and all, — forms the center of an article in the *Boston Daily Globe* of March 27, 1950, which he wrote for the *Guideposts of Life* series: "Harassed by a vexing problem, unable to think and pray over it in proper surroundings, Roger Babson, one day, wandered into an open church. Out of this experience grew an effective technique for making good decisions." Then follows an article by Roger a five minute sermonette, from which we quote in part:

"I was over 60 years old before I ever sat for a half-hour quietly alone in a church. For some weeks I had been troubled in making a difficult decision. The problem involved several people, and I wanted to be fair to all, as well as to myself. It seemed impossible to find an opportunity to think and pray by myself in proper surroundings. At my office the telephone was always ringing; in my home, members of my family were running about; it was Winter, so I could not go out into the woods by myself. As I was passing a small Episcopal church, the thought occurred to me, that it might be open. If so, I would go in. The church was open and comfortable. A stream of sunlight poured in through the western windows. I sat down undisturbed in this sanctuary of peace and quiet beauty. It took a little time for me to get acclimated to these new surroundings, but I soon did. I said a little prayer asking for help in finding a solution to my difficulty. Then I waited. Gradually the factors in the situation assumed their correct proportion, and the answer began to take shape. I arrived at a clear decision! Better still, there came a confidence and courage to act upon this decision. The whole experience was a revelation to me."

The Boston press of October 13 carried accounts of the Fourth Annual Conference of Businessmen and Educators in the Richard Knight Auditorium at Babson

Park, Wellesley. The topic was: "Revitalizing Democracy; A Plan of Action." A very comprehensive program had been arranged, covering various aspects of the subject — educational, governmental, scientific and the like. These subjects were discussed by prominent leaders, thus: William G. Saltonstall, principal of Phillips Exeter Academy; Senator Owen Brewster of Maine; Joseph O. Hirschfelder, director of the Wisconsin Naval Research Laboratory; William Green, president of the A.F. of L., and several others equally prominent in their respective fields. In the midst of the conference, Babson contributed his bit to the symposium, as featured on the front page of the *Boston Herald*: "Roger W. Babson stepped unannounced before an audience of more than 300 in Wellesley yesterday and demanded intelligence tests for the right to vote. . . . 'I doubt very much that democracy will be a success, as it is set up now,' he said. 'I believe we should have some form of qualified vote. The idea of every Tom, Dick and Harry having the vote is crazy. . . . 'Examinations, he insisted, should be required at town, state and national levels. . . ."

The audience comprised some 300-odd executives. George Cottle and George Treat attended the symposium and were very favorably impressed with the whole affair. Members of '98 will remember the Richard Knight Auditorium as the scene of the morning and afternoon activities of the Golden Anniversary, the day that Roger acted as gracious host to the Class.

Roger, as most of us know, is greatly concerned over the imminent possibility of World War III and the bombing of large centers of population; and has made public numerous suggestions of how to prepare for such eventualities. Babson practises what he preaches as evidenced in a full-page feature article in the *Boston Sunday Post* of October 9, 1950, under the headings, "Babson Solves A-Bomb Danger By Moving Out of Range. Noted Statistician Sets Up Village of His Own in N. H. Hills — Machinery and 50,000 Volume Library Transferred." We quote in part from the article:

"New Boston, N.H. — Come the A-bomb, Roger W. Babson is going to be all set. For up here in this little, out-of-the-way New Hampshire town the statistical tycoon has set up a refuge to which he and key members of his organization will retire, in the event that Boston is bombed sometime in the uncertain future. Here they will continue his statistical service organization — largest in the world — without hardly a hitch caused by the transfer from Babson Park, in Wellesley Hills, Mass. The basic preparations for this move have already been made. . . .

"When and if enemy planes drop bombs on Boston, Mr. Babson and his associates . . . will live comfortable small-town lives in regular houses, while they carry on their big-time operations. His plan is simply to transfer from the perimeter of the target area in the Hub to an out-of-the-way place so small and unimportant that no enemy pilot would ever consider wasting a bomb on it. . . . Mr. Babson has bought eight dwelling houses in and about the village. Most of them are rambling,

Colonial-style edifices that are almost show places. Others are farm-houses. . . . All of them are empty, waiting for the day that Mr. Babson hopes will never come, when Boston would be hit by enemy bombs. These eight houses will accommodate 32 families in the event of Boston being bombed, and the families would not be too crowded. Having moved here from the suburbs of Boston, the families would continue to live normal, reasonably comfortable lives in New Boston, and the men of the families, all key executives, would continue to carry on the famed Babson statistical service."

How and why Roger came to pick out New Boston and other aspects of the project are then explained in extenso in the article. There are four illustrating photos showing farmhouses purchased, other buildings of New Boston, Roger, standing, arm outstretched amid transferred records, and a sign with the legend, "NEW BOSTON, N.H. IF WORLD WAR III COMES SAFEST TOWN WITHIN 60 MILES OF OLD BOSTON —" Some of the residents of New Boston, N.H., call the town "New Babson."

When you read these notes, we will be approaching the Christmas season and the New Year. We will conclude the notes of the year by thanking all the boys and girls of '98 for their many helpful letters and acts during the past year and by wishing all, their sons and daughters, the in-laws, the grandchildren and the great-grandchildren, — one and all, a very Merry Christmas and a very Happy New Year. — EDWARD S. CHAPIN, *Secretary*, 463 Commercial Street, Boston 13, Mass. JOSEPH C. RILEY, *Assistant Secretary*, 9 Pond View Avenue, Jamaica Plain, Mass.

• 1899 •

Charles A. Schmitt, V, formerly chemist for many years with the Carter Ink Company, celebrated his 50th wedding anniversary on October 1. Congratulations to you and your wife, Charlie.

David E. Gray, VI, of Corning, N.Y., died on June 14, 1950, according to a notice from the Alumni Secretary. At this writing, no further information has been obtained from his estate or from the Corning Glass Works with which he was connected.

John Magee, II, of 32 Evergreen Road, Greenwich, Conn., died on February 8, 1948, but information regarding him and his professional career has only recently been received through the courtesy of his son, John Magee, Jr., 25. After his graduation, John became works manager for the Magee Furnace Company of Chelsea, Mass. In 1905-1906 he was in Montana in connection with the Bitter Root Valley Irrigation Project. In the latter year he moved to Evanston, Ill., and then to Chicago where he was connected with the Curtis Publishing Company as advertising representative. In 1916, he was transferred to their New York office as eastern advertising manager. In 1919, John went to Hartford, Conn., as general manager of the Maternach Advertising Agency and in 1925 joined the Calkins and Holden Advertising Agency in New York City of

which he became vice-president and treasurer, retiring in 1929. He became ill in 1946 and was a semi-invalid until his death in 1948.

In the words of his son: "John Magee had an extraordinary active mind and wide interests. His business career included foundry work, steel erection, surveying, selling, planning advertising, statistical work, and so on. He was part and parcel of the development of the higher standards and improved ethics of the advertising profession, and had a hand in many important developments in the advertising business. His feeling of business 'moral responsibility' was unusual. His word was absolutely his bond; and his reputation was almost, you might say, legendary, for square dealing, and generally shooting straight.

"Outside of business, his interests ranged from collecting United States stamps, to printing, to study of relativity back in the earliest days (1912) of the Einstein theory, to reading of the old English and old French literature, reading enormously on general subjects, fiction and nonfiction in French and in English, the study of Russian, gardening, cooking (he was a first-rate man with an orange cake), travel, radio (he was one of the Hiram Percy Maxim group in the early days of the radio in Hartford, the Radio Relay League, and so forth, circa 1920), and was able to discourse intelligently and fascinatingly on almost any subject, with facts, illustrations and good stories to back up his comments." A worthy tribute to a worthy father. — BURT R. RICKARDS, *Secretary*, 381 State Street, Albany, N.Y. MILES S. RICHMOND, *Assistant Secretary*, 201 Devonshire Street, Boston 10, Mass.

• 1900 •

Fred Everett, retiring after 35 years as state highway commissioner of New Hampshire, was honored at a testimonial dinner sponsored by the New Hampshire Good Roads Association on June 24. We quote from an article in the *Hanover Gazette* written by his granddaughter Nancy, a high school student, which has received much favorable comment: "Three hundred and fifty friends and associates of Mr. Everett attended the reception and dinner, including Governor Adams and the largest number of former chief executives ever assembled together. Each of these notables paid warm and high tribute to the retiring official. Governor Adams, after announcing that he was creating a new post in the state government for Mr. Everett, that of Highway Commissioner Emeritus, went on to emphasize the friendliness of the highway department under the Commissioner and its very high morale on an 'extraordinary spirit of good fellowship, inspired by their Chief.' Styles Bridges said, 'Fred Everett has more friends in New Hampshire than any other living man.'

"The distinguished son of New Hampshire was born in New London, N.H., April 16, 1876. He attended Colby Academy in New London and graduated in 1896, and then went to M.I.T. for three years. From 1900-1906 Mr. Everett was

an engineer for the Park Department in Cambridge, Mass., from 1906-1914 he was a division engineer for the N.H. highway department, and from 1915-1950 he was Commissioner of Highways in New Hampshire. Tremendous progress has been made during Commissioner Everett's 'reign' in developing thousands of miles of roads in New Hampshire. The department itself has grown from five men in 1906 when Mr. Everett first entered it, to 1500 year-round employees in 1950, and as many as 5000 during the summer, to whom the Commissioner is affectionately known as 'Chief.'

"There have been constantly two problems which have confronted Mr. Everett during his entire administration: First, difficult terrain — which has created scenic highways — but has made improvements costly. And second, limited funds. Perhaps the most notable engineering achievement of Mr. Everett's administration has been the handling of roads during the winter season. Our state has pioneered in keeping highways open under the most adverse conditions through developing new equipment and 24-hour service by road crews. Mr. Everett was married in 1900 to Gertrude E. Lamson. They have four children, all married, and nine grandchildren. Their home is in Concord and their summer cottage at Pleasant Lake, Elkins, N.H. He is a 33rd degree Mason and the Senior Warden of St. Paul's Episcopal Church in Concord. He has suffered increasingly from arthritis within the past few months and now is forced to use two canes." Our congratulations to Fred and may he have many happy years of retirement in his honorary office.

Henry B. Bigelow, Alexander Agassiz Professor of zoology and research oceanography at Harvard, has retired and become a professor emeritus. Professor Bigelow, a marine biologist and oceanographer for more than 40 years, is president of the Woods Hole Oceanographic Institution. He has been on the staff of the Museum of Comparative Zoology since 1906 and professor of zoology since 1931. He was with us at M.I.T. for a short time in Course VII.

Ralph Root, 71, President for the last 30 years of the Pep Manufacturing Company, New York, makers of automotive supplies, died on September 5 after a year's illness. He lived at 863 Park Avenue and had a home at Bailey Island, Maine. He attended Princeton University and was graduated from M.I.T. in 1900 with a degree in mining engineering. After working as a mining engineer for a time, he passed 10 years operating an apple orchard at Hood River, Ore. He served as a member of a draft board during World War II and was a member of the New York Athletic Club. Surviving are his wife, the former Eleanor Hastings, two married daughters and two grand children. — We have also received word of the death in August of Hugh H. Hanna who was with us for a short time in Course VII.

Please note the change in address of the Secretary who, however, remains in West Newton. — ELBERT C. ALLEN, *Secretary*, 11 Richfield Road, West Newton 65, Mass.

Elmer Allen Holbrook (Shorty Holbrook to you) has retired again after serving as dean of the Schools of Engineering and Mines at the University of Pittsburgh since 1927. He officially retired a year or two ago but was persuaded to stay on for a while. A news article states: "Dr. Holbrook was born in Fitchburg, Mass., and attended . . . Technology from which he received the bachelor of science degree. He received the professional degree of engineer of mines from the University of Illinois, where he also served as professor of mining from 1913 to 1917. A prolific author of more than 100 technical articles on mining and engineering, Dr. Holbrook also served as assistant director of the United States Bureau of Mines, Washington, D.C., from 1920 to 1922, and as consulting engineer to the United States Coal Commission in Washington in 1923. In 1948, the University of Pittsburgh conferred the honorary degree of doctor of science upon him. He lives at 1543 Shady Avenue and maintains a summer home at Winchester, N.H. . . ."

Herb Kalnus is so frequently in the news that it is hard to keep track of him. He was reported on Cape Cod as usual during the past summer. The following note from Frank Milliken was gladly received: "Yours of the eighth with the picture of the group attending the 45th reunion was much appreciated. Now that I am permanently residing so near East Bay Lodge, where our 50th reunion will probably be held, I fully expect to attend. On the occasion of our 40th a group of about 12 met with Emerson at the Cosmos Club in Washington, a meeting which was much enjoyed. The alumni are well represented on the Cape, about half in retired status, and we look forward to organizing a local club or association in the near future. Frank's address was given as Post Office Box 516, Centerville, Mass."

Harry Groves was seen in Boston during the past summer. He is still with the I.C.C. and living in Maryland. The imminent retirement of Gus Munster as vice-president in charge of purchasing for the Boston and Maine Railroad was announced in the last edition of these notes. It is now an accomplished fact; and with railroad headaches out of the way, Gus is reported as living the life of the well-known Mr. Riley. The official announcement by the railroad was as follows: "After 46 years as a railroad man, more than 38 of which have been with the Boston and Maine Railroad, the Maine Central Company and the Portland Terminal Company, Mr. A. W. Munster, Vice-President, Purchases and Stores, retires as of this date. He takes with him in retirement the deep appreciation of the Board of Directors of all three companies for the loyal and efficient manner in which he has performed his duties and carried out his many responsibilities. He takes with him, as well, the respect, affection and best wishes of his associates."

There are two deaths to report: Harold K. Lowry of Altadena, Calif., on May 31 and George A. Barnaby of Peabody, Mass., on May 10. No details are available re-

garding Harold's death. George, who for many years was a Peabody town official, was taken by a heart attack.

As the months click by, our 50th reunion comes closer. We should begin to think of our class gift and classmates will be interested to know that anything they give to the current drive for the \$20,000-000 Fund will be counted in the 50-year gift. Those in charge of the Fund are urging that gifts be made now rather than three years hence. — EUGENE H. RUSSELL, JR., 82 Devonshire Street, Boston 9, Mass. CARLE R. HAYWARD, Room 8-109, M.I.T., Cambridge 39, Mass.

• 1905 •

Frank Craver, III, of Tulsa, Okla., is apparently having more fun finding oil with his "doodle bug" than Kenneth Roberts is in finding water with his dowser. The Dallas, Texas, *Herald* of August 27 carries this story of Frank's invasion of Texas with his invention: "A Tulsa petroleum engineer will bring a radical invention to Dallas . . . which, on the basis of his records, would be the most accurate known oil detector in the world. The inventor, Frank S. Craver, claims his electronic screen detector has not only proved 75 per cent accurate in finding oil, but will even indicate its commercial value, depth and a rough outline of the field. He asserts that over the past seven years 96 out of 129 wildcat wells drilled on his information have opened new pools."

"And where I fail," he explained, "it is a lack of depth information. If the oil is too deep, the drill never reaches it." In the past seven months, however, Mr. Craver said he had improved his depth reading method to where he located 11 new pools this year with only one failure. Orthodox geologists are skeptical of his invention, which he calls a 'petrometer.' It is based on a principle which orthodox physicists agree is all but impossible. Mr. Craver says it detects emanations which come up like radio waves from underground oil. "They call it a doodle bug with a college education," Mr. Craver chuckles. (A 'doodle bug' is an oil man's epithet for any of a number of devices claiming to locate actual oil, not merely geological structures.) But the *Oil Weekly*, now *World Oil*, published in Houston, ran a four-page story Jan. 14, 1946, with saturation maps and a diagram of how the little, 10-pound petrometer works. Mr. Craver has been working on his petrometer idea for 46 years. "A former vice-president of General Electric lectured at . . . Technology while I was a student there in 1904," the Oklahoman said. "He kept repeating that every substance sends off an emanation, or wave, that could be detected if anyone could build an instrument sensitive enough. I was lucky. After only 26 experiments I devised a magnetic screen to register oil wave lengths alone." The 73-year-old ruddy-faced, tall Oklahoman has never patented his invention. "It would be too easy to copy," he says, and keeps it secret. . . ."

From the Philadelphia *Inquirer* of September 3, we get further proof of Frank Chesterman's retirement: "When Francis J. Chesterman retired from the presidency

of the Bell Telephone Company of Pennsylvania more than a year ago, he planned to devote his time to his hobbies of color photography and the exhibiting of dahlias, posies, snapdragons and roses in flower shows. 'But things didn't work out that way,' he cheerfully says. Instead of putting in his flower garden, the 66-year-old executive is up to his neck in civic labors. Besides spearheading the Eastern Pennsylvania Citizens' Committee for the Hoover Report as chairman, he is serving in the same capacity for the recently formed Philadelphia Parking Authority which is tackling the problems in mid-city traffic. Chesterman spent more than 44 years in telephone work, following his graduation from M.I.T. In 1920, he became chief engineer for Bell, in 1941, vice-president of operations, in 1947, president. Though a grandfather four times, he 'commutes' every week from his 10-acre farm at Hampton Falls, N.H. You see him around town three or four days a week, hustling from one office to another. He lives at the Rittenhouse Club in the Summer and the Drake in the Winter.

"He's a director of the Bell Telephone Co., the Fidelity-Philadelphia Trust Co., National Vulcanized Fibre Co., the Chesterman-Leeland. For years he has been a director of the Philadelphia Chamber of Commerce and was at one time a vice-president. He is, also, vice-president of the Philadelphia Council of the Boy Scouts of America and has received the Silver Banner and Silver Antelope Awards. Chesterman is a director of the Philadelphia Navy League Council, former president of the Public Charities Association, and a former president of the M.I.T. Alumni Association. He belongs to various clubs in the city. He and his wife, Mary, have two children." I question the statement about his living at the Rittenhouse Club in the summer as I see him every time I go by his beautiful home on Route 1 in Hampton Falls, N.H.; one day being pulled around by his Rototiller, another spraying his orchard, another cutting a field of Queen Ann's lace.

If you didn't thoroughly read *Life*, October 16, 1950, dig out a copy and turn to the section showing the eight best college teachers in the U.S.A., for there you will find our own Doc Lewis, still climbing, though officially retired, still teaching. Andy Fisher remarks that the man who did more than any other man in the U.S.A. to win world wars should not be allowed to do so dangerous a thing as climb a step ladder. You just can't keep a good man down. Another news release tells us more of the business life and advancement of Charlie Smart, mentioned briefly in last month's notes: "Charles E. Smart has been elected president of W. & L. E. Gurley, Troy, New York, 105-year old manufacturers of engineering and surveying instruments. . . . Founded in 1845, Gurley is the oldest manufacturer of engineering and surveying instruments in the United States. Its equipment covers the fields of surveying, geodesy, meteorology, paper and textile testing, and standard weights and measures. Mr. Smart joined Gurley as works manager in 1920 and became a director in 1926. In 1945 he was elected sec-

retary, the office he held until his election as successor to C. I. Day, who died in June. . . . Prior to joining Gurley, Mr. Smart was works manager of Wells Brothers Co., Division of Greenfield Tap & Die Corporation. In 1907, he helped found the A. J. Smart Mfg. Co., Greenfield, Mass., and, before that, he was with Sullivan Machinery Co., Claremont, N.H. Mr. Smart received his B.S. degree from M.I.T. in 1905."

Ralph Patch started his yearly trek from Stoneham, Mass., to his winter home in Florida on October 11. Edward T. (Ted) Steel has moved from Chicago to Del Vista Drive, Valparaiso, Ind., apparently the only '05 man in Indiana. Sam Shapira proudly announces the birth of his first grandson, Albert Leonard Bruno Shapira, born at Camp Bragg, N.C., on September 30, 1950. Young Albert was promptly made an honorary member of the 82nd Airborne Division, of which his father, Norman, M.I.T. '41, is a major.

Fred W. Guibord, V, died at his home in Waban, Mass., on September 9, 1950, at the age of 77. Hub Kenway, who had been very close to Fred for many years and attended his funeral, tells of Fred's rather melancholy existence during recent years, a widower for many years and childless, but courageous and useful to the end. Hub also reports having seen Alden Merrill, V, in Boston during the summer; Alden having been here following the death of his wife in late July. Mrs. O. C. Merrill recently sent to your Secretary a complete set of drawing materials O.C. had used at the Institute and these were forwarded to the Section of Graphics at Cambridge to be given to some worthy freshman. A very pretty act and one which might well be copied. O.C. is still an invalid at his home, 9 West Melrose Street, Chevy Chase, Md., where Mrs. Merrill is carrying on valiantly as eyes and limbs for O.C. — FRED W. GOLDTHWAIT, *Secretary*, 274 Franklin Street, Boston 10, Mass. SIDNEY T. STRICKLAND, *Assistant Secretary*, 69 Newbury Street, Boston 16, Mass.

• 1906 •

Twelve members of the Class were present at all or part of the festivities on Alumni Day, June 12. They were: Abbott, Breitzke, Chase, Coey, Fuller, Ginsburg, Hinckley, Kasson, Kidder, Rowe, Sherman and Smith. Alumni Day next year will be held on Monday, June 11. Classmates should be particularly interested in this date as 1951 will mark the 45th year since our graduation. Following our past custom, the Class will hold a reunion, and arrangements are being made to rendezvous at the Snow Inn, Harwichport, Mass., on Tuesday, June 12. The program will follow the usual pattern of bathing, boating, golf, and so on with a reunion dinner to be held on Wednesday evening, June 13. Scheduling the class reunion after Alumni Day is contrary to the usual custom which calls for the reunion previous to Alumni Day. In this particular case, the facilities of the Inn were already spoken for the days preceding the 11th; and where so many of the classmates are retired, it is felt that there will be no serious objection to hav-

ing this reunion begin on the 12th. Before making this decision, the Secretary contacted several members of the Class by telephone and they were agreeable to this arrangement. Snow Inn is on the south shore of Cape Cod and looks over Nantucket Sound. It is 85 miles from Boston or Providence. The Inn is very close to the shore and has an excellent bathing beach, also a 46-foot schooner for sailing trips, is near several golf courses and conveniently located, to many interesting points on the Cape. Wives and families will be welcome. Make plans now to take in the Alumni Day at Cambridge on the 11th and the class reunion on the Cape the days following.

The Secretary had occasion to call on Ralph Patch in Stoneham one day last spring and at that time Ralph exhibited some very interesting plans for a new one-story house adjacent to his residence at 25 Congress Street, Stoneham. Under date of September 21 a post card was received reading as follows: "On September 1, 1950, Ralph R. Patch, Christine V. Patch and Alma Patch moved from the above address to our new one-story house at 28 Lincoln Street, Stoneham." The Secretary appreciates Ralph's rather unusual method of reporting this useful information.

Address changes have been received which indicate more retirements among class members: Under date of March 21, William F. Farley, I, is reported as living at Brook Road, Manomet, Mass. Farley formerly lived in Wellesley, Mass., and was with the Underwriters' Laboratories in Boston. Tom Hinckley has apparently retired as he is requesting that mail be sent to his home address in Cambridge. He was formerly in the Tax Commissioner's Office, State House, Boston. Speaking of retirements, Henry Darling has purchased an estate in Wiscasset, Maine, and apparently intends to make his residence in that beautiful Maine coast town.

The following letter was received from Jack Norton, V, dated October 8, at State College, Pa.: "This is to inform you that I have joined the ranks in which many of my classmates are walking, those of retirement. I left the Upjohn Company on July 1. Mrs. Norton and I spent the summer in New Hampshire and are now living at 225 South Buckhout Street, State College, Pa. This is only temporary. We expect to spend part of this winter looking for a more permanent abode where the winters are short and the summers not too hot. We came here because our older son is on the faculty of Pennsylvania State College and he possesses two of our four grandchildren. To date I have kept busy with my golf sticks and my camera — a rank amateur with both, but lots of fun. I shall look forward to a reunion next June. You can put me down to be there." — Chester and Mrs. Hoefer, VI, returned to their home at Longwood Towers, Brookline, Mass., early in October after a three months' European trip which included visits to Norway, Sweden and England.

The Secretary regrets to report the deaths of several classmates as follows; the list is larger than usual because a

number of them occurred some time ago, but have just been reported: E. S. Campbell, IV, died on May 8, 1950. He had been head of the University of Virginia School of Art and Architecture since 1927. He passed away in Washington where he was attending a meeting of the American Institute of Architects. After graduating in 1906, he obtained a master's degree at the Institute in 1907. He taught at Carnegie Institute of Technology for seven years, was head of the department of architecture at the Armour Institute of Technology, Chicago, from 1914 to 1924, and was dean of the Beaux-Arts Institute of Design, New York, from 1924 to 1927. He was nationally recognized as a critic of design and as a water-color painter. His paintings were shown at the American Academy of Fine Arts in 1922 and since then examples of his work have been included in almost every important national exhibition and have been hung in leading museums. He belonged to many leading professional organizations. He is survived by his wife and three sons, James S., Thomas Banta, and Peter Bruce Campbell, and three grandchildren.

Edward Chandler, XIII, died at his home in Daytona Beach, Fla. In this connection classmates will be interested in a letter received from Bob Clark, dated July 23, 1950; the Secretary appreciates Bob's thoughtfulness in submitting this sketch of Chandler's successful career: "A short time ago I received notice that our classmate, Edward M. Chandler, died on May 31 last. His wife informs me that Ed had been in poor health, had one hospital confinement of 12 weeks and at least three others of less duration, undergoing several operations for various abdominal troubles. The difficulties became serious about last November and continued, with complications, with short periods of partial relief, for the following six months. Ed and I were roommates during our senior year. As we were both in Course XIII, our work was identical, and consequently we spent nearly all of our time together, not only in study and classes, but also in model making, theses, and everything else. This very close association gave each the opportunity to know the other very well. As for me, I learned that he was a very earnest student, honorable and upright in all ways, and that his friendship could be counted on at all times, in fair weather and foul.

"After graduation, he was employed for about a year by a manufacturer of lumber-drying equipment in Grand Rapids, Mich. During the latter part of 1907, he went to the Aluminum Company of America at New Kensington, Pa., where he remained until the early 1920's. During this time, he became superintendent, not only of the original plant, which had greatly increased in size, but also of a new plant in the immediate vicinity, and was also in charge of some coal mines owned by the company.

"About 1922 he was sent to Cleveland, Ohio, where he spent a year or more solving operating and managerial difficulties of a plant in that city, after which he was assigned a similar task in the case of a

property in Holmestrand, Norway. Returning in the latter part of 1924, he was later put in charge of superintending a quite new plant, particularly devoted to production of alloyed aluminum, in Alcoa, Tenn. Here, as before, his responsibilities increased with the growth of the plants, of which he became manager several years before his retirement in 1946. For the past four years, he had spent the winters in Daytona Beach, residing at 516 South Grandview Avenue. He is survived by his wife, Frances G. Chandler, three daughters and six grandchildren."

Carl Francis Edwards, XIII, is reported to have passed away in 1948. The last address on the Secretary's record under date of April, 1940, shows 1709 State Street, Santa Barbara, Calif. Further details are lacking in this connection. — Frederico Lage, III, is reported to have passed away on April 2, 1947. Classmates will remember him as one of the two brothers who came from Brazil who distinguished themselves in undergraduate days by their fencing ability. The records show that up to 1935 Lage had a New York address at 160 Broadway, but the 1937 address was Rio de Janeiro, Brazil, where he died. — Chester C. Rausch, II, died on May 21, 1950. At last accounts he lived in Watertown, Mass. A few years after graduation he was with Stone and Webster in Boston, but further information is not available.

James S. Pitkin, IV, died on August 15, 1950, at New Haven, Conn. Pitkin was a graduate of Harvard who studied architecture at Technology. The following notes on his life were taken from the Bristol, Conn., *Press* of August 16. Since 1914 he was trustee of the Pitkin Estate, which has real estate holdings on Pitkin Street named after his father. He was once an architect with Peabody and Stearns of Boston. He was a widely-known author on yachting subjects, his best-known books, each in two volumes, were *Long Island Sound Harbors* completed in 1932 and *Ports of Call* published in 1936 after two years research. He was a frequent contributor to yachting magazines. He was a native of New Haven and served as a captain in the Military Intelligence Division, United States Army, in the World War I and later as chief personnel officer of the First Division. He was a member of many yacht clubs and other organizations, was a fellow of the American Geographical Society and President of the Harvard Clubs of Connecticut.

Melinda A. Rhodehouse, V, VII, died at Santuit, Cape Cod, Mass., on July 13, 1950. She was a native of Santuit. She graduated from Simmons College and had taught in Barnstable, Mass., and Harrisburg, Pa. She had been a house supervisor of Sanford Hall, Mt. Holyoke College, for many years but retired to Santuit approximately 15 years ago. — JAMES W. KIDDER, *Secretary*, 215 Crosby Street, Arlington 74, Mass. EDWARD B. ROWE, *Assistant Secretary*, 11 Cushing Road, Wellesley Hills 82, Mass.

• 1907 •

In the November issue of *The Review* I stated that George Norton had retired from active business and was moving to

California. I have not been able to secure a new address, but the following facts regarding his career will be of interest to all of you. After graduating from the Institute, George became a civilian test engineer at the United States Arsenal in Watertown, Mass. In 1908 as the result of his taking competitive examinations where he was second in a group of 175 candidates, he was commissioned a lieutenant in the United States Army. He served for three years in the Coast Artillery and then was transferred to the Ordnance Department. At the outbreak of World War I, he was officer in charge of the Hill shops at the armory in Springfield, Mass., but was soon transferred to the office of chief of ordnance in Washington and later was sent to France. For his service there he was decorated by the French Government, being appointed an officer of the Legion of Honor, and he also received from General Pershing a citation for meritorious service. In July, 1919, he resigned his commission as lieutenant colonel and became associated with Eaton, Crane and Pike Company, paper manufacturers in Pittsfield, Mass., as an industrial engineer. In 1927 he became assistant to the president of that company and in 1930 was appointed manager of the Pacific Coast branch of the company in San Francisco. In 1942, when this branch was closed, he returned to Pittsfield in an executive position with the same concern, which had then become known as Eaton Paper Corporation, and he has been located there until his retirement on July 31 of this year. George has been greatly interested in music ever since childhood and for a long period of time was secretary of the Pittsfield Community Music School and a member of the Pittsfield Symphony Society and the Berkshire Symphony Orchestra and was also chairman of the music committee of the First Congregational Church in Pittsfield.

On July 31, after 22 years of service, Edward G. Lee of our Class retired from the Boston office of New England Power Service Company, where he had been an assistant designing engineer. After graduation Ed was a sales engineer in Boston, an engineer for a Portland, Maine, firm, and from 1914 to 1918 he was principal assistant engineer for the Union Water Power Company in Lewiston, Maine. He afterwards worked with the Southern Power Company in Charlotte, N.C., with the Central Maine Power Company, and then with the hydraulic division of Stone and Webster Corporation in Boston. In 1928 he became an estimating engineer with New England Power Company and has been with this concern ever since. As stated in an issue of *The Review* a few months ago, Ed received in 1950 the Desmond Fitzgerald medal, presented by the Boston Society of Civil Engineers, for the best paper of the year entitled, "The Proposed Re-development of the Water Power of the Connecticut River at Wilder, Vermont." Ed is now living at Biddeford Pool, Maine.

The address of William S. Lucey, who is executive vice-president of Rayonier, Inc., manufacturers and distributors of purified wood cellulose, is 112 East 74th

Street, New York City, N.Y. — From the Alumni Office I have information stating that the new address for James M. Gaylord is 1000 Darby Road, San Marino 9, Calif. — BRYANT NICHOLS, *Secretary*, 23 Leland Road, Whitinsville, Mass. PHILIP B. WALKER, *Assistant Secretary*, 18 Summit Street, Whitinsville, Mass.

• 1909 •

Again it is with deep regret that we report the death of two more classmates, both of Course VI, and both died within a day of each other. Brigadier General Clifton Carroll Carter, 74, died on September 20 at Walter Reed Hospital of a heart ailment. He graduated from West Point in 1899 and after a few years on active duty came to the Institute as a member of our Class to study electrical engineering. He served in three wars. During the Spanish-American War he was in Cuba, during World War I he was in France as an observer, and in World War II he taught Army aviation cadets as a civilian after having retired from the Army in 1940. He devoted the major part of his life to teaching physics at West Point where for many years he was professor and head of the department. Your Review Secretary visits West Point frequently to confer with the department of electricity on educational matters and he learned from experience as well as from hearsay that the hospitality of the Carters was a tradition at the Academy. He was held in deepest regard by the cadets and was known as "Uncle Cliff" to thousands of them. For many years he was the secretary of his class at West Point. He reached the retirement age in 1940, but returned to duty in World War II.

We in Course VI remember not only his high scholarship but his ever pleasant and courteous manner. Although his duties often times prevented his returning to the Institute for alumni and class reunions, he always kept in close touch with us as his communications in the class notes testify. He was awarded the Spanish-American War Medal, the Army of Occupation of Cuba Medal, and the Victory Medal. He is survived by his widow, Mrs. Mai Coleman Carter; two sons, Colonel Clifton Coleman Carter of Washington, and Colonel Marshall Sylvester Carter of the Far East Command; two sisters, Mrs. Julius Marsh of High Point, N.C., and Mrs. Mildred Watkins of Lexington, Ky.; and two brothers, William Carter of Lexington and Gus Carter of Dade City, Fla.

A number of us received a clipping from a St. Louis paper reporting the death at his home in St. Louis of Delos Haynes, VI, on September 22 after a prolonged illness. He was 63 years old. He prepared for the Institute at Central High School, St. Louis, and was one of the outstanding students in Course VI. Almost immediately after graduation he entered the Patent Office and graduated from the National University Law School, Washington, D.C. He entered private law practice and at the time of his death was senior partner of the law firm of Haynes and Koenig of St. Louis. He was patent attorney for several manufacturers near Boston which brought him, as well as Mrs.

Haynes, to Boston on frequent occasions. Many times we local classmates were the recipients of their generous hospitality in being their guests at the theater and the Pops. It would be difficult to find an alumnus who has been more loyal to the Institute and to the Class than Delos has been. His regular attendance at our reunions and Alumni Day is traditional. While at the Institute he was a member and secretary of the Executive Committee of the Institute Committee, was class secretary in our junior year and secretary of the Electrical Engineering Society. For years he has been an honorary secretary and has influenced many young men to enter the Institute. He has been most generous in his contributions to the Class and to the Institute.

In his profession he was considered a leading American patent attorney. For many years your Review Secretary has acted as a patent expert and learned first-hand of Delos' high reputation as a solicitor and an attorney in court. He was chairman of the American Bar Association Committee on Co-operation with United Nations and the United Nations Educational, Scientific and Cultural Organization. At the request of the United States Secretary of Commerce and the Commissioner of Patents, he made a study of the patent systems of seven European countries in 1937. Since 1935 he has been a member of the Patent Office Advisory Committee of the Secretary of Commerce. At the Washington University Law School he was a lecturer on patent law, and to graduate students at the same university's school of engineering he also gave lectures in his specialties, which embraced electronics, chemistry and mechanics as related to law.

He was also chairman of the board of trustees of Pilgrim Congregational Church and a member of Masonic groups. Although Delos and Emma had no children, they made a practice at Christmas time of playing the role of Santa Claus to many children in different homes. Surviving in addition to his wife, the former Emma Pellet, is a sister, Mrs. Mildred Engle, formerly of East St. Louis, now living in Honolulu. — PAUL M. WISWALL, *Secretary*, Box 125, Glen Ridge, N.J. CHESTER L. DAWES, *Review Secretary*, Pierce Hall, Harvard University, Cambridge 38, Mass. *Assistant Secretaries*: MAURICE R. SCHARFF, 366 Madison Avenue, New York, N.Y.; GEORGE E. WALLIS, 1606 Hinman Avenue, Evanston, Ill.

• 1911 •

Aleck Yereance, I, has agreed to be chairman of our 40-year reunion, which is scheduled for Friday, June 8, through Sunday, June 10, at Snow Inn, Harwich Port on Cape Cod. Situated off Route 28, Snow Inn is 85 miles from either Boston or Providence and for railroad travel the station used is at Hyannis, 12 miles away, with airplane service available at the Hyannis Airport. Several excellent golf courses are within easy motoring distance, including the famous Eastward Hol course at Chatham. Our thanks certainly go to O. W. Stewart, I, and Carl Richmond, I, and their wives, for having

lined up this excellent resort hotel with 62 rooms available for our use, when we found that East Bay Lodge at Osterville would not be available for such an early week end — chosen, of course, to tie in with Alumni Day, 1951, which will be at M.I.T. on Monday, June 11. Make your plans to attend the reunion and bring your wife and other members of the family if you can. Mr. and Mrs. Frank H. Thompson, who operate this hotel which has for years maintained its high standards of living facilities and delicious food, have assured us that "at this writing it looks as if the rate would be \$13 daily per person with three meals."

At Lowell on September 9, Elizabeth Anne Runels, niece of Ralph Runels, I, and daughter of Mr. and Mrs. Chester Runels¹⁵, was married to Robert M. Eggleston of Pelham, N.Y. The bride was graduated from Smith College in 1948 and the bridegroom is a graduate of Culver Military Academy and Yale University. He entered Yale School of Forestry this fall to study for a master's degree and the young couple live in Pine Orchard, Conn. Another junior '11 wedding took place at the First Baptist Church in Worcester on September 23 when Eleanor Daniels, daughter of Mr. and Mrs. Fred Harold Daniels, VI, of Worcester, married Samuel Callaway Bronson of Yonkers, N.Y., son of the late Mr. and Mrs. Miles Bronson. Mrs. Bronson was graduated from the Bancroft School, Miss Hall's School and Smith College and is a member of the Junior League of Worcester, while Mr. Bronson was graduated from Riverdale Country School and Yale University and is a chemical engineer with the Air Reduction Company of New York City. Our best wishes for a long and happy life together!

Leaders of the construction industry, meeting in mid-September at the Washington, D.C., headquarters of the Chamber of Commerce of the United States, formed two special committees to co-operate with the Federal Government on national security problems in this field. Heading the committee on construction mobilization is Ralph Walker, IV, currently president of the American Institute of Architects. Congratulations, Ralph! — Congratulations also to Al Wilson, I, recently elected vice-president of the Cambridge (Mass.) Chamber of Commerce for the fiscal year starting October 1, 1950. A native of Cambridge, Al is president and treasurer of A. O. Wilson Structural Company and is a leader in civic affairs in his native city, including work in the Salvation Army, Community Fund and Red Cross drives. He is a past president of the Rotary Club of Cambridge, a trustee of the North Avenue Savings Bank and a member and former president of the Metal Fabricators Association of New England. Incidentally, the Cambridge Chamber chose a 1913 man — Gordon G. Howie, I, vice-president and general manager of the Cambridge Gas Light Company — as treasurer for the ensuing year.

Hats off to Ed Tolman, XIV, professor of psychology at the University of California — a man with the courage of his con-

victions! Supplementing a story entitled, "The Regents versus the Professors" in the education section of *Life* for October 2, is a pictorial page with an interesting story about our Ed." The trouble began in June, 1949, when the university's board of regents asked all University of California professors to sign a non-Communist oath. Most signed it, but after more than a year's wrangling 31 still refused, their position being that while they, too, opposed Communism, they also opposed the dictatorial attitude of the regents and felt that their academic freedom was threatened. No one claimed that the 31 professors had communist leanings; in fact, several regents, including President Sproul, Governor Warren and Admiral Nimitz, were opposed to the "sign or resign" ultimatum, but they were overruled, in the face of which six professors decided to sign the oath, one resigned and 24, including Ed Tolman, took no action and were dismissed. Eighteen of these, led by our illustrious classmate, decided to take their fight with the regents to court and the initial hearing before a district court of appeals was heard on September 14 and a long, drawn-out legal battle threatens. Now 64, Ed has taught at California for 32 years and is a real leader in the field of teaching psychology.

At the Boston area Development Program dinner at the Statler (October 17), 1911 was represented at the head table by Carl Ell, XI, President of Northeastern University; and sitting together among the captains and workers were Marshall Comstock, VI; and Henry Dolliver, Fred Harrington, Carl Richmond and Aleck Yereance, all Course I. Here in Upper Worcester County, we are running an October drive among the Alumni and your Secretary is area chairman for this worthiest of causes — the \$20,000,000 goal of the M.I.T. Development Program.

Pursuant to his wonderful philanthropic work for the Children's Hospital School, infantile paralysis rehabilitation center in Baltimore, Ban Hill, I, retired street railway magnate, spoke before the Pikesville (Md.) Lions Club on October 11 and unveiled publicly for the first time some 25 gadgets he has added to his inventions for the young patients at the institution. His "armless feeder" is a gadget that Ban is still perfecting at his home, but already it rivals the dreams of a Rube Goldberg. "It has three foot-pedals," says the *Baltimore News-Post*, "two of which move the plate containing the food in two opposite directions at the will of the operator, so that food in any position may be forced onto the spoon. The third foot-pedal, aided by a cunningly designed cam, lifts the food smoothly and evenly, without spilling anything, turns it in the air and actually places the spoon in the patient's mouth. . . . He regards the 'armless feeder' as his most complicated device so far." What wonderful satisfaction you must get from all this, Ban!

Rufe Zimmerman, IX, Vice-president in charge of research and technology, United States Steel Corporation, in addition to his timely statement on "Modern Research: Its Contributions," prepared for the subcommittee on the study of mo-

nopoly power of the House Committee on the Judiciary, Washington, D. C., April 26-28 — which was reviewed in the July class notes — delivered an address at the annual meeting of the American Iron and Steel Institute in New York City on May 25. His subject at that time was "Research, Security, and Progress." Dave Bartlett, VI, for years connected with the Boston and Maine Railroad, has retired and is now living at 1192 North Main Street, Laconia, N.H. Other address changes: Calvin P. Eldred, VI, 247 Washington Street, Winchester, Mass.; Frederick C. Harrington, I, 1152 Commonwealth Avenue, Allston 34, Mass.; and Harold L. Robinson, I, Damon Street, Holden, Mass.

In the President's Report published in this issue, you will read of the splendid progress of the M.I.T. Development Fund toward which during 1950-1951 all fund-raising efforts have been turned. Early in 1951, plans will be completed for a return to the regular yearly Alumni Fund campaigns, in which 1911 has always been a leading factor. And now to the huge family of 1911 and their succeeding generations, a great big Merry Christmas to you all! — ORVILLE B. DENISON, *Secretary*, Chamber of Commerce, Gardner, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford 55, Mass.

• 1914 •

After five months of nearly continuous absence from his office, your Secretary has returned and expects to be there pretty regularly from now on. This absence has had one bad effect in that it has not been possible to work up any material for class notes. It therefore would be greatly appreciated if '14 men would drop your Secretary a line occasionally so that he can have some background material.

Carroll C. Davis, who since 1933 has been chief chemist of the Boston Woven Hose and Rubber Company, was awarded the 1950 Charles Goodyear Gold Medal for his outstanding contributions and services to the science of rubber technology. The presentation was made at a dinner of the American Chemical Society's Division of Rubber Chemistry held in Detroit in early October. Davis transferred to the Institute from Dartmouth, and since graduation in 1914 has been continuously associated with the Boston Woven Hose and Rubber Company. He is one of the very few persons in the Class who has remained with one company during his entire business experience. He has also done considerable writing and has been editor of *Rubber Chemistry and Technology* since 1929. He has been assistant editor of the Rubber Section of *Chemical Abstracts* for many years. He further serves as editor of the American Chemical Society Monograph, *Chemistry and Technology of Rubber*.

Alden Waitt, major general, retired, has become associated with the R. S. Aries and Associates as vice-president. They are chemical engineers and economists, with headquarters in Brooklyn, N.Y. Your Secretary has not, however, heard whether Alden is making his headquarters in New York or is still staying in Washington.

It will be recalled that Charlie Hull for 29 years was with Raymond's of Boston until that organization changed hands. At that time Charlie went to New Hampshire to operate a general store because of the previous operator's illness. The man has now recovered, and Charlie is back in Boston and is associated with the Timothy Smith store, an organization well known in the furniture business for many years.

Several classmates were present at the dinner of the Boston Committee on Financing Development of the Institute held on October 17. Unfortunately, your Secretary had a conflict of appointments for that date that made it impossible for him to attend this dinner. Any '14 man who has not contributed to the \$20,000,000 fund, which is now on its last \$4,000,000, is asked to do so promptly. Let us all help put it over the top. — H. B. RICHMOND, *Secretary*, 275 Massachusetts Avenue, Cambridge 39, Mass. ROSS H. DICKSON, *Assistant Secretary*, 126 Morris-town Road, Elizabeth 3, N.J.

• 1915 •

I have enviously watched several of our classmates walk proudly down the aisle to give their attractive daughters in marriage, but of course knew it never could happen to me. But, alas, your aging Secretary has had an unusual honor, privilege and pleasure bestowed upon him! Our classmate, Pellian Mar (now in Formosa) has a son, Gilbert, a junior at M.I.T. On October 12 in the Crothers Chapel of the First Parish in Cambridge (Unitarian Church at Harvard Square) Gilbert was married to Margaret Yang, formerly of Chungking, China. In the absence of her family, I had the honor, at Gilbert's request, to give this pretty bride in marriage. Both Frances and I were pleased to do this for these young people. The impressive ceremony was well attended by staff members and students from M.I.T., Harvard, Tufts, Radcliffe, and Boston University where Margaret is a freshman. The delightful reception in the Parish House was entirely prepared and served by their student friends. I can sympathize now with some of you fathers who have had to stand in the reception line and shake hands with 200 guests. From 1915 to Margaret and Gilbert go all our best wishes for a long, happy and successful life.

Henning Berg, an outstanding classmate at our June reunion, writes from 2335 Laguna Street, San Francisco 15, Calif., "I am glad to hear from you and to let you know that the class picture finally arrived in good shape. I have an idea that I would like to suggest to you. I believe you and all the others at the reunion would appreciate it. Could you make a list of those in the picture, and Courses, e.g., 'reading from left to right, top row, and so on' and possibly include address and business? The latter two items would probably be quite a chore and perhaps one could depend on the Register for that information. The names, at least, would enhance the picture value, particularly with time marching on. I have a few good reunion pictures and have projected them several times." That's a good idea of Hen's; George, Henry and I will make

up the list and send it to you chaps who were there. There will be no extra charge for this unusual service.

It's always a pleasure to hear from Parry Keller at 105 Fir Hill, Akron 5, Ohio: "I am very sorry now that I did not take more reunion pictures and spend more time in working out interesting shots. I received a duplicate set of Wally's pictures which are excellent and will add a great deal of new interest to my reunion collection. I am thankful to report that I am quite well and have been very busy with my work at Goodyear since I returned from the reunion in June. Herman Morse is the only classmate I have seen since then. In the Akron region I am still functioning as an honorary secretary for M.I.T. Still keep up an active layman's interest in local Y.M.C.A. activities and have been an editor of sorts for some time, doing most of the writing and editing of the monthly *University Club News* which I started. Between Goodyear and the non-profit sidelines I manage to keep out of the more serious troubles of life. My son is still on the staff at the Case Institute of Technology as an instructor. He is living in Cleveland and spends practically all his time there. His Case responsibilities are gradually increasing and outside activities keep him quite busy. I plan to leave for a motor trip into Michigan and Canada during my last week of vacation. Say hello for me to the 1915 gang!"

Mary Plummer Rice, always an active classmate, chides me good-naturedly about our stag reunion. "I thought that of course you would know I was only joking about attending the reunion. Nothing in the world would make me spoil 'the boys' fun on the Cape. I hasten to reassure all of you! I'll duck the cocktail party, too, but the dinner of the Alumni I did enjoy in 1940 and I hope I can attend again this year. I have sisters in Auburndale and Needham and shall visit them at the same time." Mary, we'd all be glad to see you at any time.

Congratulations to these classmates on their new honors: On October 9 in New York City, Howard L. King was awarded the Townsend Harris Medal for outstanding postgraduate achievement in some "significant field of human endeavor," by City College, N.Y. In August, Alfred V. Coleman of South Weymouth, Mass., was appointed assistant to the president of New England Electric System.

Allen Abrams, Vice-president in charge of research, Marathon Corporation, Rothschild, Wisc., has sent me an interesting booklet on his company's research and development program, prefaced by Allen's foreword: "The mystery which formerly surrounded research has disappeared almost entirely. That is the way it should be, for research is a business — the business of seeking out new facts, then putting them to work in developing new and better products and processes. The ultimate goals of research are to eliminate waste and so to conserve the resources of our country; through new products to create more jobs and to improve living standards. Such accomplishments contribute materially to the maintenance and improvement of our way of life, a system in

which research thrives and which still affords the greatest opportunity to the individual. Here at Marathon we are trying to meet these broad objectives by working towards certain specific goals. . . ."

More honors for '15 men with our compliments: On May 22, Bill Campbell, Head of the Food Technology Department at M.I.T., spoke at a ladies' night program of the M.I.T. Club of Central Massachusetts at Sterling Inn, Sterling, Mass.

Dr. William E. Brown, Dean of the College of Medicine, University of Vermont, was awarded the honorary degree of doctor of science at the 115th annual commencement at Lafayette College, Easton, Pa., on June 9. "Dr. Brown is an alumnus of the Class of 1909. Teaching for several years after graduation, he was one of the first eight students to enter the Harvard and Massachusetts Institute of Technology School of Public Health in 1913. . . . He became Health Officer of York, Maine, and was one of the first full time health officers in a summer resort town. He then returned to the School of Public Health in Boston as an instructor and acting dean. Later he entered Harvard Medical School and received his medical degree in 1920. After an internship at the Peter Bent Brigham Hospital in Boston, he became surgeon-in-chief at the Franklin Hospital in New Jersey. In 1924, he became an associate professor of preventive medicine at the College of Medicine of the University of Cincinnati and remained there until 1945. During that time he did consultant work in industrial medicine and in other fields. In 1943, he entered the Army with the rank of lieutenant colonel and was assigned to the School of Military Government at Charlottesville, Va. After three months there, he was transferred to Walter Reed Hospital in Washington and then was sent to Cairo, Egypt. He worked with both the British and American Armies on the problem of rehabilitation of the Balkan States, including Albania, Greece and Yugoslavia, until the end of the war. In 1944, he was appointed director of the Health Division for the Balkan and Greece Missions of UNNRA. While he was in Greece, soon after the German evacuation, the revolution broke out. As a neutral, he took over control of all of the hospitals in the Athens and Piraeus area. On returning to America in 1945 he became dean and professor of preventive medicine at the University of Vermont."

Greetings from a long-lost classmate: Ray O. Delano, superintendent of construction for Morton C. Tuttle Company of Boston, and recently in charge of the work on the new office building in Peterborough, N.H., for the American Guernsey Club. Otto Hilbert wrote from Corning, N.Y., that he enjoyed the reunion and likes the class picture.

On July 1, Phil Alger wrote from 1758 Wendell Avenue, Schenectady, N.Y.: "I shall look forward to 1955 and our 40th reunion and shall hope to get there without the aid of a wheel chair, although it sometimes seems that this might be necessary. I sent a T-15 tie to Ken Boynton in Paris. My son, John, who graduated from

VI-A in June, has just arrived in Stockholm."

Thank you all for your interesting letters which make news and notes for our Review column. Keep it up and "help Azel." — AZEL W. MACK, *Secretary*, 40 St. Paul Street, Brookline 46, Mass.

• 1916 •

In our notes for November, you will recall that we called your attention to the fact that we almost lost our friend, Irving McDaniel, to another class. In the event that some of you are not aware of this, Mac was Osiris 1916, Class Day Committee 1916, Class Marshall and gave the Class Prophecy. Mac has another slant on '16 which may be of benefit to all of us and is expressed in the following excerpt from one of his recent letters: "Sixteen has paid off in more ways than one. When I play roulette I always bet on 16. Natch, I win. You cannot lose on 16."

In response to a hurried request for class notes grist, we were glad to have the following word from Lee Jones in Elma, N.Y. Lee says that from M.I.T. he was with the M.S. and P. and S.S. Railway until 1922 except for two years during World War I with the Norton-Harjes Ambulance and Railroad Transportation Corps in France. After two years with Pillsbury Flour Mills in Buffalo on construction, operation and sales, he took on responsibilities for traffic work with Niagara Gorge Railroad in Niagara Falls until 1928. For the next 13 years he was in building management with the Alangin Realty Company in Buffalo and World War II found him in war work with the Sterling Engine Company in Buffalo. Since then he has been with the Buffalo Forge Company in Buffalo specializing in Navy and maritime fans and heavy machine tools. He is married, has one daughter and hopes to find time to be a farmer.

John Ingle sends us a nice bit of information: "1916-1940 — employed by the Goodyear Tire and Rubber Company. Engaged in rubber procurement, and rubber plantation development and production operations in British Malaya, Netherlands India (now Indonesia), Philippines, Panama and Costa Rica. The period 1917-1938 was spent mainly in Singapore, British Malaya, and in Sumatra, Netherlands, India. 1940-1945 — employed by the Goodyear Tire and Rubber Company. Activities consisted principally in assisting in the government crude rubber stockpiling and synthetic rubber programs, as conducted by the Rubber Reserve Company, a subsidiary of the Reconstruction Finance Corporation. 1945 — retired from the Goodyear Tire and Rubber Company to take up avocado and citrus growing in Escandido, San Diego County, Calif. Married: June 4, 1925, in Singapore, Straits Settlements, to Kealoha Waterhouse of Honolulu, T.H. Children: two sons, John Byron Ingle, Jr., age 21, and Gordon Waterhouse Ingle, age 18. Both were born in Sumatra. John, Jr., has a job in San Diego, Calif. Gordon will graduate next month from high school and expects to start a university course in forestry next September. Incidentally, I have

been moving around quite a bit but am now permanently residing in San Diego."

We'll bet that Kem Dean didn't expect to hear any more about this one, but we have reporters all over the country keeping tabs on what's going on. In fact, Don Webster had a hand in getting this bit of news to us. We have in front of us a clipping from a June issue of the *Houston Post*: "A River Oaks burglary in which the loot was only \$5 led . . . to the solution of another in which \$2,000 worth of jewelry was stolen. . . . Two young burglars broke into the home of Kemerton Dean, a cotton broker, at 1912 Bellemeade Road. They woke his 2-month-old grandchild, Martha Grundy. The baby woke Mrs. Dean. The burglars, one carrying a pistol, ordered Mr. and Mrs. Dean to stay in bed and demanded money. Mr. Dean let them have his billfold. He said later there was \$5 or less in it. . . ." We're glad to know that no harm came to Kem or his wife.

Robert Kallejian writes from Los Angeles with a welcome résumé of his 34 (count them) years since the old days in Boston. He carries Pharm.D., and Ph.C. after his name. Says he has been happily married to the same girl for 33 years, has two daughters, one, Eleanor, married to an aeronautical engineer (Cal. Tech. '45) in the heating and ventilation department of Douglas Aircraft and the other, Dolores, who will graduate from U.C.L.A. in February '51, majoring in the theater arts and drama. Has a grandson Philip, too. Following work at M.I.T. as an assistant to Professor Woodward (food and drug analysis), he went to the Coast in 1919 and established a series of successful retail pharmacies, finally settling in Hollywood in 1926. In 1932, during the depression, he lost all his seven drugstores and a \$125,000 laboratory. He is now manufacturing and selling a stomach remedy (Prapion Medicine) which he perfected years ago. He currently has his medicine on seven major radio stations and one national hook-up, KRKD, Los Angeles. It sells all over the country except in the highly competitive Eastern seaboard states.

Dick Berger still carries on his campaign to prevent cancer and has sent us some new reprints showing progress in the recognition of his work. His thesis is that cancer is due primarily to the cumulative effect during lifetime of contact with various carcinogens which result from the incomplete burning of coals, manufactured gases, oils, woods, tobaccos and other combustibles.

Once again, we have received word of another of Bob Wilson's speaking engagements as explained in the following press release date-lined Waterville, Maine, September 24: "The source of America's future oil supply will be discussed at the Colby College Business Management Institute by a top industrial scientist, Dr. Robert E. Wilson, October 6."

Frank Darlington wrote to us from his summer residence at Hyannisport, Mass. We hadn't heard from Frank for a long time so it was especially nice to read his letter which said: "My seasonal term of residence in God's Country (May to November) where, incidentally, I do practi-

cally the same things that occupy me in Pittsburgh the rest of the year, is drawing to a close for 1950. This summer was enlivened by preoccupation with the distribution of 'Darlington Currentographs.' (Ed. note: The Currentograph enables you to take the guesswork out of your racing and cruising in Long Island and Block Island Sound waters by giving you at a glance the direction and velocity of the tidal currents for each hour.) The little gadgets took hold very satisfactorily and I have no doubt that they will eventually make Uncle Sam very rich (or me very poor). Otherwise, my life has pursued the even tenor of its way overshadowed by the menace of the red peril, but as yet only indirectly affected by that political cancer." We'll look for you next summer at the Cape and the reunion, Frank.

A nice letter was received from Charlie Cellarius in which he wrote: "I was married on February 4, 1950, after being a widower for nearly 20 years, to Mrs. Mary G. Curtis of Cincinnati, Ohio. We now reside at 3522 Principio Avenue, Hyde Park, Cincinnati. I continue to practice architecture in Cincinnati, where I have had my office since 1921. The work of the office is largely school and university buildings, with some churches, residences, and miscellaneous buildings. The A.I.A. Convention in June will complete my sixth year as treasurer of the A.I.A. This, I think, is enough and after this term I shall leave the Board of the Institute." Let's hope that the dates of the A.I.A. Convention in June do not conflict with our reunion dates of June 8, 9 and 10. We want you with us, Charlie.

Tom Berrigan always seems to be able to come through when you want him to. If there is to be a gathering of '16 men in or near his area, he always manages to get there. In this instance, he has written us a nice letter in which he says: "I'm still chief engineer of the sewerage division, Metropolitan District Commission, and have additional duties as chairman of the Merrimack River Valley Sewerage Board. Last year, President Truman appointed me a member of the Water Pollution Control Advisory Board in the United States Public Health Service and occasionally I travel throughout the country and meet in Washington with 11 others to advise the surgeon general on policy in pollution abatement. To bring myself up to date with what is going on in colleges in sanitary engineering, I took a little time out last year to attend Harvard for special courses in sanitary engineering under our old classmate, Gordon Fair. It was good to be brought up to date in the field and to receive a master's degree in engineering. I'll urge the boys, when I meet with them, to furnish you interesting tidbits about themselves for The Review." Thanks Tom; any help along those lines will certainly be appreciated.

In our November issue, we quoted from a newspaper clipping on the activities of Rev. Raymond B. Blakney. We recently received a letter from Ray and would like to take this opportunity to quote a portion of his letter: "Looking back on M.I.T. days, it seems to me now that I was much

too young to appreciate the situation; much too poor in financial means; and much too lost in the big student body there. It is only in later years that the value of the M.I.T. training, apart from its emotional overtones, has grown on me and I do want to take this opportunity to express my gratitude. You probably do not know that I had 12 months in Course IX in graduate studies in 1925-1926, from which I profited greatly, although life has turned so many corners since then that I have never used the specific information I acquired in that intensive 12 months. I am, nevertheless, proud to tell people that I graduated from M.I.T."

The letter which we received from Joey Connolly is so interesting that we are going to quote it in its entirety: "Your kind letter of the 29th of September has been received, and I am encouraged to write a little bit, since you point out that comments about ourselves for The Review are not interpreted as bragging. In recent months I have been extremely busy with matters relating to medical civil defense. Dr. Herman N. Bundesen, president of the Chicago Board of Health, was appointed to be in charge of medical care, public health and welfare, in the event of a great catastrophe, such as an A-bomb explosion, and he has gone into this new activity with his characteristic energy. This has meant much work for me in aiding him to set up an effective organization. On the lighter side, I have recently made a number of trips with members of the Chicago Mountaineering Club for practice climbs. You may wonder where we find mountains around Chicago on which to practice. We don't have any mountains, so we do the next best thing. On weekends, we go to a place that has high rock cliffs, and, climbing in small parties roped together, we get practice in scaling the precipices, so that, during the more serious climbing efforts while on summer vacations, the club members will be in good physical condition. There has recently been organized the National Brucellosis Committee to deal with the threat to both human beings and animals of this widespread disease. I have been named on this committee to represent the American Public Health Association. This year, I have the honor of being moderator of the Congregational Church of Jefferson Park. We had a wonderful meeting of the M.I.T. Club of Chicago last Thursday evening, with Dr. Compton and Dean Lewis as guest speakers, addressing a large and enthusiastic audience of M.I.T. men. Here's hoping that you, Ralph, are not too bashful to put something in The Review about your own activities. Thanking you for your fine constructive services on behalf of our Class, I am, with kind personal regards . . ."

Having been taunted into this by the closing of Joey's letter, I am pleased to report that on September 22, 1950, Sibyl Baxter of Newton, Mass., became "Mrs. Secretary." Other than that, I have been kept very busy trying to get more and more granite out of our quarry. While I have the opportunity, I would like to remind all of you once again that we are planning a big time for the 35th reunion

which is to be held in the Cape Cod area of Massachusetts on June 8, 9 and 10 of 1951. In the future issues of The Review, we will be able to give you more detailed information on exact location of the reunion, ways and means of getting to and from there and an idea of the program. In the meantime, keep these dates open.

Getting back to the news of our classmates, Jap Carr sent us an interesting letter in which he wrote: "A year ago I amazed myself by going to Harvard for a three months' advanced management course. I was comforted in my defection from Technology when I found that our classmate, Bob Wilson, was giving his excellent talk on the problems of equity financing to the advanced management group. I am now hard at work trying to put into good use some of the things learned at Harvard and am gradually finding that an old dog can still learn a few tricks and feel well repaid for the three months' hard work at Cambridge. This year we spent our vacation at Buck Hill Falls, as usual, and, as usual, most of my time was spent on the tennis court. Probably I should be sensible and play golf like most of my classmates of 1916, but I have always said that I was going to play tennis as long as the King of Sweden did. I am off in a little secluded part of Northeastern Pennsylvania, where one hardly ever sees an M.I.T. man, so I have very little to report on that score. Meanwhile, I am looking forward to our 35th reunion, which is now creeping pretty close to us, and will hope to see you and many others of the Class of '16 at that time." When we get letters such as these from Jap and Joey in which they tell us about their tennis and mountain climbing, we wonder if perhaps we are reporting on the Class of 1950.

In closing our column, we would like to remind you once again of the reunion dates, June 8, 9 and 10, of 1951. Also, keep your letters coming to us. They are a real source of inspiration. — RALPH A. FLETCHER, *Secretary*, Post Office Box 71, West Chelmsford, Mass. HAROLD F. DODGE, *Assistant Secretary*, Bell Telephone Laboratories, 463 West Street, New York 14, N.Y.

• 1917 •

The good news has come along that Lin Noyes has been discharged from the hospital and is at home again. Lin spent a year recovering from an attack of pulmonary tuberculosis, and will be taking it easy for another few months. He writes that he will be in Florida (address: 214 North Dixie Boulevard, Delray Beach) from the end of November until approximately May 1.

Tom Meloy writes that: "I thought you might be interested in the latest news on Sully. As I told you, he has been doing considerable traveling lately, all the way from Israel to Tokyo. He has been deeply interested in Formosa salvage and harbor installations in the Philippines and in construction work for Japan and Korea. He expected to leave for Tokyo before November 1 if possible, where he plans to open up an engineering office. . . . Sully

is selling his house and, as he said, plans to move lock, stock and wife to Tokyo. There is every indication that he . . . has really struck his stride. We had a bang-up Independence kick-off dinner last Thursday in Washington, with President Killian keynoting and myself chairmanning. It was the largest meeting of Alumni in the history of Washington, and there was a lot of enthusiasm. . . . There were quite a few generals and admirals. . . . The great Class of 1917 was well represented."

Walt Whitman has been appointed by the President of the United States to the AEC's general advisory committee. — Irving Fineman has moved from Beverly Hills, Calif., to Shaftsbury, Vt.

Military members of 1917 are moving about these days. Your Secretary notes that Colonel Simpson R. Stribling has left San Francisco for the Chicago Ordnance District, and Colonel J. Worthen Proctor has abandoned his A.P.O. number for an address in Concord, N.H. Colonel Jesse A. Rogers paid a semiformal visit to Lobby and Ray Stevens recently. He retired from the Army in May after having a long service in the Ordnance, for which he received a splendid letter of commendation from the Chief of Staff at the time of his retirement. He is living in Newton, is in good health, and expects to take up some form of activity which will utilize his extensive experience in the production and handling of Ordnance materials.

Lobby has been ranging farther afield lately. We understand he went to church two Sundays in succession — the odd part of it being that the first Sunday found him at St. Botolph's in Boston, England, the second in Cardinal Mercier's in Malines, Belgium. The high notes rumored about indicate that Lobby was in London, Paris, Brussels, Oslo, Stockholm, at the very least. He spoke in two Guild Halls: Boston and Bath, England, and was made an honorary member of the St. Botolph Club of Boston, Lincolnshire. He dined with Ambassador Murphy in Brussels, attended the formal wedding of an M.I.T. Alumnus' daughter in Malines, and, with Ramón F. Muñoz '09, was given a luncheon by the Mexican Minister to Norway. A guest in the House of Commons one evening, he was also admitted to the very private archives of the GPO in London. Your Secretary understands that the details of some more lurid misadventures at Marstrand and in Stockholm are not to be printed in the public press, which must grant Lobby diplomatic immunity. — RAYMOND STEVENS, *Secretary*, 30 Memorial Drive, Cambridge 42, Mass. FREDERICK BERNARD, *Assistant Secretary*, 24 Federal Street, Boston 10, Mass.

• 1918 •

Ray Miller has been a local representative of the New England Mutual Life Insurance Company (through the Merle G. Summers agency) since 1927. Last summer he was notified by the American College of Life Underwriters that he is one of 449 candidates from the entire country to receive a chartered life underwriter diploma this year. The exercises of induction into this company of insurance scholars were held in Washington on September

27. This highest life insurance educational honor is conferred only on persons who successfully complete a four-year course and meet a three-year experience requirement. Ray did it in a walk.

Bill Foster is well on the way to becoming our currently most distinguished classmate. Bill has inherited the mantle dropped by Paul Hoffman when he left the top office of the Economic Co-operation Administration (Marshall Plan) to become president of the Ford Foundation. Foster, the onetime Long Island machinery manufacturer, became Under Secretary of Commerce during Averell Harriman's regime, and from there went to the E.C.A. Because of the many famous William Fosters, including the first president of Reed College, who escaped the current confusion, the Paris paper *L'Aube*, organ of the Conservative Party, reported on Hoffman's successor as follows: ". . . An Ex-Militant Communist, M. William Z. Foster, Becomes Administrator of the Marshall Plan." Reporting on the report, *Time* for October 9 said:

"ECA's Foster, *L'Aube* went on blithely, became a convert to communism after the Russian Revolution, was a defendant on 'criminal syndicalism' charges in 1923, a candidate for the U.S. presidency in 1924, 1928 and 1932. By 1946, *L'Aube* said without further explanation, he was Under Secretary of Commerce, became ECA deputy in 1948 and deputy administrator last year. Next day *L'Aube* woke up and apologized for its blunder. It had mixed up the biographies of new ECA Administrator William C. Foster, New York businessman and Republican, and still-militant U.S. Communist Boss William Z. Foster, no kin. Cried the Communist *L'Humanite*: The story was an insult to William Z. Foster." — GRETCHEN A. PALMER, *Secretary*, The Thomas School, The Wilson Road, Rowayton, Conn.

• 1919 •

Jacob M. Carter, Jr., writes: "Still occupied with my own business, carbonated beverages. My only daughter is married and away from home. Was wondering if any alumni associations will ever function to suit the man in a seasonal occupation, my busy season being summer." — Elisabeth Coit advised that she is still principal project planner for the New York City Housing Authority.

Bernard S. Coleman has been appointed chairman of the Committee on Chronic, Convalescent and Custodial Care, Los Angeles Welfare Federation. He is now owner of the Paradise Sanitarium and Hospital, 2415 South Western Avenue, Los Angeles. His son, Roger, who is in his last semester at the University of California at Los Angeles, is chairman of the Theater Activities Board and is classified 1-A; ready for service. His son, Kenneth, who is 24, is still undergoing postpolio treatment but took his first three steps unaided in two years. PROGRESS!

Bill Banks visited New York in the Middle of October and telephoned. We were unfortunate in not being able to get together but things are going well with Bill and his family. — EUGENE R. SMOLEY,

Secretary, The Lummus Company, 385 Madison Avenue, New York 17, N.Y. ALAN G. RICHARDS, *Assistant Secretary*, Dewey and Almy Chemical Company, 62 Whittemore Avenue, Cambridge 40, Mass.

• 1921 •

Six months to go to our 30th reunion at the Sheldon House, Pine Orchard, Conn., on Friday through Sunday, June 8, 9, 10, followed by a visit to Technology on Monday, June 11 for the Alumni Day events. You have received Mel Jenney's first announcement, superbly illustrated by Ted Steffian. There will be more to follow with details of the arrangements. Chairman Irv Jakobson and the Reunion Committee wish to extend sincere thanks for the return of the questionnaire with an indication of your probable attendance at the reunion. If you have not already returned the sheet, it will be a big help to all of us if you will do so right now, whatever your decision on attendance.

Early replies indicate a large attendance. Over 40 of the first 70 said they would attend, including Fred Adams, Charles Baish, Buck Buckner, Phil Coffin, Jack Cummings, Jack Facey, Ed Farrand, Ben Fisher, Syd Gould, Judge Greene, Lieut. Griswold, Ex Guckes, Flemmon Hall, Walt Hamburger, Jack Healy, Dug Jackson, Irv Jakobson, Murray Jones, Bill Kennedy, Ed Lockwood, Fritz Lord, Hugh McKinstry, Leo Mann, Bob Miller, Norm Patton, Ernest Pauli, George Pollock, Al Povah, Don Randolph, Fairfield Raymond, Jack Rule, Rufe Shaw, Saul Silverstein, Dick Smith, Art Wakeman, Bob Waterman, Joe Wenick, Charlie Williams, Jeff Wilson, Dick Windisch and Miles Zoller.

Pressed for news of the meetings of the Reunion Committee, Mel Jenney quips: "You might include a note in The Review to the effect that the committee looks like a pretty healthy and happy bunch for old bucks who are about to celebrate their 30th reunion and that Jake is as handsome as ever." Chairman Jake, who dreams he is building a fleet in his own shipyard to take the entire Class to the beachhead in front of the Sheldon House on R-Day, pauses in reunion correspondence and says: "I have just learned that Phil Clark is no longer with the Transportation Corps Board of the Army. He has purchased an inn in Maine to cater to the summer trade."

Rev. William F. Hastings has returned to New York where he is with the Congregational Christian Service Committee. In a note advising that he will speak next month at the Congregational Church in our home town of Glen Ridge, N.J., Bill says: "It is interesting that there are three preachers in the Class of 1921. Rev. Wiliston Wirt is a minister in our Congregational Christian denomination in Berkeley, Calif. (Rev. Everett R. Harman is the assistant pastor of the Cathedral of the Madeleine in Salt Lake City—Cac). For the last six years, I have been pastor in the Union Church at San Juan, Puerto Rico. I am now director of our program for displaced persons and have served in this capacity since last May." Charles MacKin-

non, First Vice-president of the Plymouth Cordage Company, was named a member of the board of directors, according to a first-page article in the Plymouth, Mass., *Old Colony Memorial*. With the company since 1924, Charlie became superintendent in 1934, manufacturing manager in 1937 and first vice-president in 1941. Victor S. Phaneuf has received an assignment in the active reserve as port engineer of the Boston port of embarkation, serving as chief of the engineer section and technical advisor on the port commander's staff. A lieutenant colonel, Vic was commissioned back in 1925 and saw five years of service in World War II. He is a resident of Winchester, Mass., and general manager of Bond Brothers, Inc., general contractors of Everett, Mass.

Walter E. Church of Church, Newberry and Roehr, Portland, Ore., architects, and one of our most loyal newsgatherers, writes: "Irving (Jimmy) Smith was elected regional director for the newly created Northwest region of the American Institute of Architects at its annual meeting in Washington, D.C., this spring. At the same meeting, Glenn Stanton was re-elected first vice-president. Jack Stanton (no relation of Glenn's) and his partner are engaged on the architectural design of many school and athletic projects. I saw Cookie Cake at one of the recent football games but in a mob like that there wasn't much time for conversation. I hear his hardware firm, the J. E. Haseltine Company, is very busy. Mrs. Church and I left last April for a three-month trip which took us through parts of Canada, Ireland, Scotland, England, Belgium, Holland, Germany, Denmark, Sweden, Finland and Norway. We spent most of the time in Scandinavia where I was particularly interested in the modern architecture and Mrs. Church in the modern crafts." Ernest Henderson and Robert L. Moore, President and Vice-president of the Sheraton Corporation of America, are reported to have inspired a success story broadcast by the Voice of America in five foreign languages as an example of the opportunities under the free enterprise system. Ernie and Bob now have 30 hotels in the United States and Canada with the latest acquisition of the Hotel Gibson in Cincinnati.

John W. Barriger, President of the Chicago, Indianapolis and Louisville Railway Company, is the subject of a number of items in the news. Popular as a speaker, he opened the annual meeting of the mechanical division of the American Association of Railroads with the keynote address revealing his own philosophy which has restored the 100-year old Monon as a prime factor in United States and Hoosier railroad history. Typical Barrigerisms: "... make your work your pleasure ... everyone is a railfan at heart ... working on a railroad is really being a professional sportsman getting paid for playing the most fascinating game on earth ... (such) spirit and attitude quickly becomes contagious and so vitalizes an entire organization." He also addressed the conference on careful switching with an understandable message of practical physics and the opening session of the communications

section. Jack and officers of his Hoosier Line were hosts to the 85 members of the railroad study delegation from 12 European Marshall Plan countries on a special train to see the Monon's new bridge spanning the Wabash River, a length of welded rail, the shops and a visit to French Lick Springs. A master of public relations, he has a new all-musical color film to dramatize the growth of the Monon and the territory which it serves.

George A. Chutter is placement chairman of the M.I.T. Club of Northern New Jersey. A welcome call from William H. Rose supplied the data that he is in charge of manufacturing for the Charles F. Abbott Company, East Orange, N.J., fabricators of electrical harnesses. William R. Ferguson also called about the reunion. Bill is general construction superintendent for the Doral Construction Corporation on housing in Long Island and makes his home in East Orange, N.J. His elder daughter is married and he is a grandfather. Son James served in the Merchant Marine and is now a senior at Newark College of Engineering. Barbara is a freshman at Skidmore.

At the request of George Chutter, Ralph M. Shaw, Jr., President of the Pedrick Tool and Machine Company, Philadelphia, has prepared a 5000-word report on a recent trip to Europe. For Rufe's many friends, Hexalphas and others, we shall run it serially. Here's the first installment: "When my wife suggested we go to Europe, the idea left me cold. She pointed out that Mary had graduated from high school and travel would improve her mind. Accordingly, we set out. I was firmly convinced that we in the U.S. had a corner on everything pertaining to engineering and manufacturing. What a rude surprise to learn that we hadn't. Leaving the *Mauretania* at Le Havre, which is completely rebuilt, we boarded a little French train whose locomotive had a shrill, squeally whistle and made Paris an hour late as I expected. Paris was the same, decrepit taxis, beggars and all. The exchange was 350 francs per dollar and the price of a meal at the sidewalk cafes was from \$5 to \$10. A new note was the subway, the Metro. An electric locomotive pulls five cars. The fare is 20 francs and you can go anywhere on it. Then to Nice on the Blue Train. There were 15 cars, as heavy as Pullmans, and I wondered what France had to pull it. Imagine my surprise when a big Pacific-type locomotive slid up and coupled on. Other than the shrill whistle of all European trains, it did not make any noise. We picked up the right-of-way with no puffing or snorting and started to roll at about 85 mph. The 500 miles to Marseilles took eight hours, faster than the Empire State Express, as fast as the Denver Zephyr used to be and comparable only to the Northwestern 400. Nice was fair. We went to Monte Carlo and to Grasse, where they make perfume, and were glad to have the stay terminate. The Grand Corniche is the motor road to Genoa, 1,000 feet above the water, carved out of cliffs straight down to the sea, crooked and just wide enough for two cars. The driver of our Fiat bus drove at terrific speed. Tearing up to a hairpin

curve, he would cramp the wheels all the way over, missing the outer wall and the inner cliff by fractions of an inch as we rotated about the rear axle." (Continued next month.)

Walter J. Hamburger, Director of Research of the Fabric Research Laboratories, Inc., Boston, has been made visiting professor at Lowell Textile Institute, according to front-page stories in *Lawrence* and *Dedham* papers. At Technology's commencement, coinciding with our 20th reunion in 1941, Walt was the first ever to receive the degree of master of science in textile technology. He now makes us eat crow for our comment in the November, 1941, class notes: "Shades of the original unpredictable Patsy. Who'll bet a wheel chair to a pair of crutches that one of the gang will win his Sc.D. in 1961!" Says Walter: "For the benefit of those who were worried back in 1941, I have saved them the trouble and effort necessary to attend in 1961 — got my Ph.D. at Polytechnic Institute of Brooklyn in 1948." He is adjunct professor at Poly, a member and past national counselor of the American Association of Textile Chemists and Colorists, the American Society for Testing Materials, the American Association for the Advancement of Science, the American Association of Textile Technologists, the governing council of the Fiber Society and a fellow of the English Textile Institute. He has written a number of scientific papers and lectured to textile societies. His son, Walter, Jr., is a student at Lowell Textile Institute and his daughter attends Wheelock College. Mr. and Mrs. G. Frank Lord of Great Barrington, Mass., announce the marriage of their daughter, Melissa, to Dr. Frederick D. McCandless of Johns Hopkins University. Mr. and Mrs. Richard J. Spitz of New Rochelle, N.Y., announce the engagement of their daughter, Margot, to Frank A. Schlesinger of West Orange, N.J. Harry Field writes that his son, John, was married to a Virginia girl and is in Honolulu with the Mutual Telephone Company. New addresses have been received for Albert Calvert, Dr. Attilio Canzanelli, Robert D. Fairbanks, Walter C. Hagerton and Mrs. Malcolm B. Lees (Cornelia Nelson).

Robert F. Miller is consulting industrial engineer on depot operations for the Signal Corps with headquarters at the Pentagon in Washington. Liz Gatewood, Phil Hatch and Jimmie Janes are on a number of technical subcommittees of the American Institute of Electrical Engineers relating to land and marine transportation and power systems. Phil also gave a lecture on "Service and Maintenance of the Diesel-Electric Locomotive" as part of a seminar arranged by the New York section. Liz is with the American Bureau of Shipping, New York City; Phil is general mechanical superintendent, New York, New Haven and Hartford Railroad and Jimmie is development engineer, Public Service Company of Illinois, Chicago.

A Very Merry Christmas and the Happiest of Reunion Years to you and yours from your class officers and the Reunion Committee. We're hoping Santa will bring us the completed questionnaires from everyone! — CAROLE A. CLARKE, Secre-

• 1923 •

In September, R. M. Watt, Jr., commander of the Boston Naval Shipyard, was promoted to the rank of rear admiral — Captain DeWitt C. Redgrave, on the completion of a tour of duty as director of the material laboratory at the New York Naval Shipyard, has retired. In September, he was scheduled to assume duties as vice-president of the Georgia Tech Research Institute in Atlanta.

I last reported on R. V. Burns on his return to this country after a considerable number of years as director of the government hydraulic laboratory in Ceylon. He is now connected with Knappen Tippetts Abbutt Engineering Company in New York. I think members of the Class, many of whom know Bob, will enjoy reading the most interesting letter he wrote to me in September from Ankara which makes up the rest of the notes this month.

"At last I have been able to find time to write to you as promised last May or June when we had lunch one day together in New York. Perhaps I told you about being in Turkey last summer on the Gediz River project near Izmir and that I returned to the U.S.A. about September 15, 1949. I was in the New York office on the designs and estimates for that project until December when I went to Haiti on another project. In Haiti our company is working on a multipurpose project for the Artibonite River which empties into the sea about 100 kilometers north of Port-au-Prince. The aim is to control floods by building a storage dam to impound the winter rains and release the water for power generation and irrigation when it is needed most during the growing season. About 80,000 acres of land will be irrigated under the development. I returned from Haiti in March this year and was working on the designs, estimates, and report on this Haitian job when we had lunch together.

"Instead of going back to Haiti on another scheme there, I was sent to Turkey again, leaving New York on July 10 and arriving in Ankara on July 13. Since that time, I have been in the Menderes Valley most of the while with trips to other parts of Turkey. Here in the Menderes Valley the problems are somewhat similar to the Gediz Valley or the Artibonite Valley in Haiti. In winter the heavy rains cause floods in the valley while in summer there is not enough water to go around. It seldom rains during July, August or September, so the farmers, in order to increase the yields, pump water from the river, if there is any in it, or from wells underground. This has been a dry year so the river was pumped dry early in the year with the result that the land in the lower part of the valley did not get enough water to produce a good crop. We are planning to build storage reservoirs to impound part of the winter runoff and use it for irrigation during the summer. The question of generating electricity at some of these storage reservoirs as water is being released, is now being studied.

"The Menderes Valley is very interesting from a historical standpoint. The valley has been inhabited for approximately 6,000 years, so one finds here today the remains of many former civilizations. Ephesus is, perhaps, the most interesting place and is in a reasonably good state of preservation. St. Paul built a big church in Ephesus and preached there for two years. The central heating system which used to heat the church by circulating the smoke through conduits in the walls and roof is interesting from an engineering point of view, apart from the arched roofs which were common in those days. St. John had a beautiful church of marble in Ephesus. He is buried in the church, the remains of which are in good condition. There are the remains of many other buildings, such as the Temple of Diana, the famous theater, the gymnasium, the stadium, the library and paved streets with pillars on each side. Sewers were provided under the streets by building arched culverts and water was supplied by canals and aqueducts from the adjoining hills. The arc of Diana was the equivalent of our Fifth Avenue in New York. It was 500 meters long and had beautiful carved columns on each side. On top of these columns lights were placed at night to light up the street which extended from the big theater to the docks.

"There are no docks or water at the end of the street now, as the river changed its course and the old river bed is filled in. The streets were paved with large flagstones beneath which the water-supply pipes and sewers were constructed. The whole place is full of ruins which tell interesting stories of the civilizations of the past and particularly how the municipal engineering and structural problems were solved. At Miletus, near the mouth of the Menderes River, there is a fine collection of ruins, too, of which the big outdoor theater is still in a good state of repair.

"At Heriopolis, farther up the valley, there are the remains of an ancient Greek city which was, apparently, a sort of sanatorium. There were a great many baths in this city where the warm water from the ground springs was used for health purposes. Like the other cities in the valley, this one was partly destroyed by a very severe earthquake in the 13th Century."

— HORATIO BOND, Secretary, National Fire Protection Association, 60 Battery-march Street, Boston 10, Mass. HOWARD F. RUSSELL, Assistant Secretary, Improved Risk Mutuals, South Broadway, White Plains, N.Y.

• 1924 •

Comes now a report from our traveling secretary, cancellation mark Zamboangal And with a return address saying only "Barnacle Bill." Hank is running the S. S. President Fillmore this time. He saw both Chris de los Reyes and Emilio del Prado in Manila and says that Del has let him down. In spite of his record-breaking family, not one is married as yet so no score on grandchildren. In Hong Kong he looked up Jimmy Wong who had his oldest son back working with him in the steamship business. The rest of his family are in Australia, and this boy is going back

there soon to finish college. Hank has moved his own family out into the country to Petaluma, about 40 miles north of San Francisco so the Simonds offspring will have a bit of room to grow up in. Sam Shulits, whose long-time bachelor status was suddenly altered as reported last month, has gone back to school again. But not as a student, which had seemed a possibility. It's Professor Shulits, now of the civil engineering department, Michigan College of Mining and Technology. Sam sent a Progress Chart of the Shulits Project with the ordinate a Scale of Heavens. It reached 7 H on the date of son Walter Williams' arrival. These engineers!

"Francis V. Rosseau, section head of processing technology at the General Foods central laboratories in Hoboken, N.J., will join the Research and Development Department in New York as a staff technologist. He joined General Foods in 1946." Frenchy was in the food business before the war in which he was a lieutenant colonel in the air forces. From St. Paul comes the news that Philip D. Blanchard has been made national service manager for Combustion Engineering-Superheating, Inc., and will move to East Chicago, Ind., to take over. Among Phil's clubs, according to the announcement, is one with an intriguing title — the Friendly Fishing Club. That might bear investigating. Who's friendly, the fish or the fisherman? Or is it just a front for a little group of serious poker players? Sounds suspicious, especially if it is recalled that he once belonged to something else called the Early Birds Breakfast Club!

In August, the New England Telephone and Telegraph Company announced that they had appointed a new general manager for Rhode Island, none other, of course, than Francis A. Barrett, former southern division manager. Frankly, we're not at all sure what this means. It's undoubtedly good, but Frank has been head man down there anyhow for some years so we'll have to do some investigating before we can give you the real dope. The San Francisco *Neus* recently ran a feature story on James E. (Buff) Jagger. The Buff means firechaser, evidently — here in New England it's Spark. And it explained that Jim's long-time chasing of worthwhile conflagrations was what led to his appointment as G.M. of the International Association of Fire Chiefs. He has quite a collection of old helmets, badges, trumpets, and so on — something to keep in mind for our next reunion. Might come in handy in helping to put out some of the spontaneous combustions.

We're sorry to have to report another reduction in our numbers. On September 2, F. L. Gemmer died in Pittsburgh. Since 1946, he had been a senior account executive with the advertising firm of Ketchum, MacLeod and Grove, Inc., in that city. To Mrs. Gemmer and the two children, our sincere sympathy.

Hank Simonds isn't the only one to move to the country. Reports have it that Sam Zerkowsky is doing a bit of gentleman farming on 40 acres outside of New Orleans. And Nip Marsh has just acquired some 67 acres called "Indian Bowl" in Groton, Mass., with a good deal of stand-

ing timber — enough to keep him in exercise for the rest of his life. Paul Cardinal, Jr., now in his last year in high school, is looking forward to M.I.T. next year. He'll have lots of company with other '24 sons. In this year's freshmen class are Sidney Balsbaugh, William C. Bartow, Jr., and Daniel H. Keck, Jr. (Dan, Sr., is classed as '25 but he's really a '24 man.) And there are a number of others in the upper classes. Belated wedding announcement: On June 3 in Greenwich, Conn., Mrs. A. W. H. Taylor to William Cecil McHenry of Allentown, Pa. Bill is district manager of the Penn Power and Light Company in that city. Our congratulations. Add to our list of atomic energy experts the name of Carl Frederick Muckenhoupt of the Office of Naval Research. The announcement of a recent talk Carl delivered assured his prospective audience that "he is unqualifiedly able to discuss the subject." He is. To the chairmanship of the Northeastern section, American Chemical Society, John T. Blake, Simplex Wire's research director.

Bob Dehlendorf has left Jack and Heintz and is now in Chicago, as sales manager for A. O. Smith Corporation. Everett Atwell has gone south from Lowell, Mass., to Greensboro, N.C. And just to keep the balance, Dick Bundy has come north from Florida; is currently in Speculator, N.Y. One thing that Frank Barrett wanted to do in writing our 25-year history for the reunion book was to trace our movements as a class during this period — what an M.I.T. education did to disperse a group as large as ours, how it played a part in taking us away from our native haunts. It would have made an interesting study, but it was a bit too involved at the time. Maybe we can do it for our 50th! — HENRY B. KANE, *General Secretary*, Room 1-272, M.I.T., Cambridge 39, Mass.

• 1925 •

The Beverly, Mass., *Times* recently carried the information that Willard Allphin, VI, has accepted the position of Community Fund Chairman for the town of Danvers this year. The following is quoted from the news article: "Willard Allphin is married to the former Catherine W. Washburn of Lowell and has two sons, Kendall and Richard. He is a graduate of . . . Technology and is supervisor of commercial engineering on fixtures for the Sylvania Electric Products, Inc., with whom he has been affiliated for the past seven years. Mr. Allphin has been a resident of Massachusetts for the past 29 years, and since moving to Danvers several years ago, has been active in civic affairs. He was the first president of the Danvers Civic League, as well as the first president of the Richmond PTA and the Danvers PTA council. Besides serving on the Town Manager Survey Committee and on the special committee for the building of the new school in Danvers, Mr. Allphin serves as a director of the Danvers Community YMCA.

"In the professional field, Mr. Allphin is a member of the Illuminating Society and a member of the National School Lighting Committee, which was instrumental in setting up the standard practice

on school lighting. He is also New England section chairman for the Illuminating Society. The Community Fund considers itself fortunate in obtaining the services of Willard Allphin as the Danvers Chairman and, under the leadership, an organization should be developed to assure that the necessary funds are raised to continue the work of the Boy Scout, Girl Scout, Danvers Community YMCA, Danvers Visiting Nurse Association, North Shore Babies' Hospital, Massachusetts Society for the Prevention of Cruelty to Children and the Catholic Charities Service."

The Worcester, Mass., *Telegram* tells us that Mac Levine, II, has been re-elected for a second term as president of the M.I.T. Club of Central Massachusetts. The following news item concerning Colonel Edgar R. C. Ward, VIII, is quoted from the *Nashua, N.H., Telegraph*. He has recently reported for duty as "state senior army instructor with the National Guard of New Hampshire. . . . The new instructor is a native of Maine. He comes to New Hampshire from the Panama Canal Zone where he served in the operations section at Fort Armador. He entered the United States Army in 1926, following graduation from . . . Technology, and has served at Fort Preble in Maine, Fort H. G. Wright in New York, Fort Munroe in Virginia, and Fort Randolph in the Canal Zone, as well as in the Philippine Islands and in Japan. He was awarded the Legion of Merit for his service during World War II. Colonel Ward and Mrs. Ward and their two daughters will make their home in Concord, N.H."

We are pleased to have received information regarding James C. Evans, VI, who is the civilian assistant to the Secretary of Defense. He spoke recently at the Tennessee A and I State College at the 22d annual convention of the National Technical Association of which he is secretary. Although his talk was devoted largely to a discussion of the activities of the association, he pointed out particularly contributions being made by negroes in his native state to cultural pursuits.

The Medford, Mass., *Mercury* recently published a most interesting article on Chet Trask, XV. I believe all of you will be interested in this so I am quoting the complete article: "Colonel Henry C. Trask of Medford, well-known businessman and Chief of Staff of the 9240 ORTSU (Boston Port of Embarkation), is with the unit at Ft. Hamilton, N.Y., on a 15-day tour of intensive summer training with the New York Port of Embarkation. Col. Trask resides at 18 Woodsedge Road, West Medford, with his wife, Jane L., and daughters, Barbara Ann, Priscilla Fay, Martha Maria and Susan. Treasurer of the Trask Engineering Corp., and well known as a designer of amusement devices, he is a registered professional engineer, a member of American Legion Post 45 of Medford, VFW Post No. 1012 of Medford, the Reserve Officers Association, Neptune Lodge IOOF of Revere, the West Medford Congregational Church and a former trustee and officer respectively of the Point of Pines Yacht Club and the Caledonian Club of Boston."

"Commissioned in 1925 in the Corps of Engineers directly on graduation from MIT with a background as student instructor in demolition, his military career naturally pointed to engineering with demolition service. An interesting sidelight on the pre-graduation training furnished by the Army was that two of the then company grade instructors became quite famous — Brigadier General David Odgen who had a large share in developing the Amphibious Engineers, and Major General Edmund Leavy who in addition to high level assignments became Chief of Transportation Corps in World War II. In the years previous to the war, Col. Trask acted as instructor in demolition with the 101st Combat Engineers of the Mass. National Guard and Reserve engineering unit. After further training in the Engr. School at Ft. Belvoir, Va., he went into active service and in 1941 became Chief of Operations Section, Constructing Quartermaster of the First Corps, covering 42 post camps and stations.

"At the outbreak of war he was assigned to the 37th Engrs. as Plans and Training Officer and embarked at Brooklyn for the ETO. In England, attached to the Royal Engineers for a period to acquire the latest British methods and technique in mines and booby traps he was then assigned to the American School Center as Chief of the English Section which soon became noted for a technique of mine and booby trap training which no doubt saved thousands from injury or death. At this school he was promoted to Lt. Col. During the war he served as Executive Officer of an Engineer Regiment which received several battle awards. Released from active duty in December, 1945, Col. Trask enrolled in the Active Reserve and for further training was ordered to the Command and General Staff College at Ft. Leavenworth, Kansas, where he graduated in the logistics course. As Chief of Staff of the Boston Port of Embarkation (9240 ORTSU), he is with his unit now preparing in uncertain times for prompt service to the nation."

At least three of the entering freshman class at the Institute this fall are sons of members of the Class of 1925: namely, sons of Willard Allphin, Tom Price and Yours Truly. There are probably others in the freshman class and I would be interested to know of them. — F. LEROY FOSTER, *General Secretary*, Room 5-105, M.I.T., Cambridge 39, Mass.

• 1926 •

The clipping services were not at all generous this month, bringing in but three items. Jim du Pont is still popping up in the most unusual places — this time the Willimantic, Conn., *Chronicle* reports of a talk he gave in that city in early October and the accompanying photograph of Jim was a great improvement over those in other newspaper articles that we have seen. The *Newburyport News* tells us of a new activity for Marron Fort; he has been appointed chairman of the Republican Finance Committee in that city. Nice going, Marron. From Denver, Colo., we pick up a story about Arthur F. Johnson who has developed a new type of artificial

stone. Apparently, Arthur has been marketing the stone in Colorado, but the news item reports its introduction into Southern California. Arthur got the idea from the artificial marble used in the Hotel Tokyo in Japan which he saw while in the service.

Wick Eddy sent your Secretary an announcement of his wedding on June 30 to Lucy Alma Reynolds in New York City. Congratulations, feller! On the back of the announcement Wick wrote that he is still an outdoor man, now owning 550 acres in Vermont. Back at our 10th reunion, Wick drove out to Toy Town Tavern with me and I recall that he was planting evergreens up country at that time — Christmas trees, I think. By now, whatever he planted should be coming along in great shape. That sort of venture always appealed to me, but Wick's 15-year start (and foresight) puts me right out of the running.

Some of our classmates have been giving a hand in the local Development Drive and I see them occasionally in that connection. Chenery Salmon, Jack Larkin and Fred Broughton are in a group with which I have been working and it's good to have the opportunity to get together with them.

Well, the mackerel arrived in the harbor a few days ago; so, instead of rambling further I'm going to dig out my spinner and try to catch a few. So, with my usual plea for you to send along just a bit of news, I'll get along to my fishin'. — GEORGE WARREN SMITH, *General Secretary*, E. I. du Pont de Nemours and Company, Inc., Room 1420, 140 Federal Street, Boston 10, Mass.

• 1927 •

Your Secretary wishes you all a MERRY CHRISTMAS and success in the new year.

At a recent meeting of the Advertising Club in New York, James Chirurg, President of the Chirurg Advertising Agency, spoke on "Why Advertise?" Mr. Chirurg is author of the book, *So You're Going to Choose An Advertising Agency*.

The Washington, D.C., *Times-Herald* recently announced that Max L. Libman, local patent attorney, had been appointed patent adviser to the Bureau of Standards. Libman formerly was a patent attorney specializing in electronic equipment in the legal division of the office of the Chief of Ordnance, Army Department. During World War II, he worked as an electrical engineer in the Army Signal Corps.

Harriet W. Allen of Berkeley, Calif., associate professor of physics at Connecticut College since 1947, has been appointed professor of physics and head of that department at Western College for Women in Oxford, Ohio. The appointment was announced by Western College President Philip E. Henderson. Her experience includes work with the General Electric Company in Schenectady, instructor in physics at Hunter College, associate professor in mathematics at Hollins College, contract physicist with the Bureau of Ordnance of the Navy Department, and research physicist with the Air Reduction Company.

It is with sincere regret that we announce the death of John M. Hennessey. His mother was kind enough to send us word that he had passed away on July 4, 1950. — JOSEPH S. HARRIS, *General Secretary*, Shell Oil Company, Inc., 50 West 50th Street, New York 20, N.Y.

• 1932 •

News of activities of members of our Class is scarce, as usual. When you read this, will you please drop me a post card with some news for this column. Last Alumni Day, 13 of our Class signed the register. They are: W. E. Bearce, George E. Colby, Frederick J. Eimert, Rolf Eliassen, Lester Glickman, Joseph P. Ivaska, George K. Kerisher, G. Arthur Lowery, Daniel F. Neilon, William B. Pearce, Arthur G. Russell, Thomas E. Sears, Jr., and Walter C. Voss.

F. R. Morral is an associate professor at Syracuse University and author of, "Nodular Iron — A Bibliography," which appeared in the July, 1950, issue of *American Foundryman*. — E. N. Rosenquist was appointed assistant director of the central research department, Monsanto Chemical Company, last June. — Daniel O'Connell was married in August to Margaret Helena Ashworth of Tiverton, Mass. — CLARENCE M. CHASE, Jr., *General Secretary*, 1424 East 7th Street, Plainfield, N.J.

• 1934 •

It is with deep regret that we announce the death of Rufus A. Soule, 3d, which occurred on June 14 at his home at 3 Laurel Street, Shrewsbury. During the war, Rufus was a commander in the Navy and was awarded the Bronze Star for distinguished service in combat. When a lieutenant commander in January, 1944, he was awarded the Legion of Merit for "exceptionally meritorious conduct" as commanding officer of a destroyer escort during American landings in the Anzio-Nettuno area in Italy. He was commanding officer of the destroyer escort *Herbert C. Jones* for 23 months and his ship was given the Navy Unit Commendation for operations at Anzio-Nettuno. Following his discharge from the Navy, he joined Tucker and Rice, heating and plumbing contractors, in Worcester and was made chief engineer in 1946. He leaves his widow, Mrs. Dorothy (Tylee) Soule; a son, Rufus A. Soule, 4th; and a daughter, Joan Soule.

A recent letter from Walter F. Read states that he has been employed, except for the war, by the petroleum industry. His experience has been concerned with operating problems and process design work for oil refineries. During the past year, he has been in Paris doing the same type of work. Walter L. Wise, Jr., is still with the Kingston-Conley division of the Hoover Company. The last time that we heard from Wally he had just been made purchasing agent. He is now sales manager of the electric motor division.

Joseph L. Seligman, Jr., writes that he has strayed from the narrow path of science and engineering and is now practicing law. In particular he is specializing in

tax law with the firm of Pillsbury Madison and Sutro in San Francisco, Calif.

In a recent edition of the *Link-Belt News* we found a picture of the building that was being sent to their representatives in Johannesburg, Union of South Africa. They are represented by Edward L. Bateman, Ltd., and Ed, as you know, is one of our worthy classmates. C. Ashley Woodhall has been named purchasing agent of Walter Kidde and Company, Inc., Belleville, N.J. He joined the Kidde concern in 1941 and was employed in the production department until 1943. In that year he was transferred to the industrial relations department and in 1948 became superintendent of maintenance and supplies. He has also been teaching economics and personnel administration for the last five years at Rutgers and Seton Hall night schools.

G. Roy Fugal, who is personnel manager for General Electric Corporation in Bridgeport, Conn., has been awarded the degree of doctor of philosophy in education and psychology from Yale University. He is chairman of state and local committees on education and industrial problems and is second counselor to S. Dilworth Young in the presidency of the New England mission of the Church of Jesus Christ of Latter-Day Saints.

It is interesting to note that at the Technology Alumni Day we had the following representatives from our Class: H. B. Backenstoss, W. Franklin Baxter, Jr., Robert M. Becker, Samuel Blake, Martin F. Cosgrove, Arthur B. Ellenwood, Joseph Fishman, Rudolph T. Greep, J. Arthur Hansen, Russell Hastings, Jr., John A. Hrones, Norman B. Krim, Henry Mazer, David A. Mooney, Henry A. Morss, Jr., Edward H. Nowell, Robert Roulston, Daniel Smith, Malcolm Stevens, Warren L. Towle, Fred W. Vaughan, Carl H. Wilson. — JOHN G. CALLAN, JR., *General Secretary*, 184 Ames Street, Sharon, Mass. ROBERT C. BECKER, *Assistant Secretary*, Chile Exploration Company, Chuquicamata, Chile, S.A.

• 1936 •

So far, the following have indicated that they expect to be at our 15th reunion: Marshall M. Holcombe, Eli Grossman, Phil Slater, Bob Woodcock, Ed Halfmann, Dave Varner, Hank Cargen, Justin Shapiro, Bob VanSant, Jr., and Milner Wallace. John Myers tells us that he will make it if the Army doesn't have him by then. Let's hear from the rest of you. Marshall M. Hocombe, Eli Grossman, and Phil Slater have offered to be of assistance on the 15th reunion. Any others willing? Also, Roger A. Krey has offered to be an assistant secretary if needed, which we appreciate. No doubt, we will be calling on him before too long.

Harry Essley reports to Jack Austin that since World War II, he has been with Eastman Kodak, Rochester, N.Y., doing design engineering on sound movie projectors; and we can bet he is doing a fine job. Walter G. Bain, United States Air Force Reserve, was notified recently that his nomination for brigadier general had been signed by President Truman and sent to the senate for confirmation. "Gen-

eral" Bain's assignment is chief of the Detroit Air Force Procurement Field Office, Air Materiel Command. Walt is also a member of the Air Staff Committee for Reserve Policy. He is currently general production manager of the Ladish Company, Cudahy, Wis., a position which he has held since December, 1945.

Stanley M. Levitt and family are now living in Oklahoma City, Okla. They were formerly residents of Oak Ridge, Tenn. How do you like Oklahoma City, Stan? Two bills were recently introduced in Congress to assist Richard F. Harvey in obtaining a patent on the heat treatment now known as "Martempering." A patent application was filed on this heat treatment early in 1940, which relates to work previous to his present employment as metallurgist at the Brown and Sharpe Manufacturing Company. Good luck to you, Dick.

Bob VanSant and Jerry Chapman write that they are in Philly occasionally and will stop by to say hello. Will be glad to see you fellows—any time at all. Ed Halfmann reports that he is still with the Philadelphia Electric Company, but is now in the newly formed System Development division of the engineering department. Justin J. Shapiro is now in charge of the designing and manufacturing of biological and nuclear instruments at the American Instrument Company, Silver Spring, Md.

Marshall Holcombe reports that he is busily working away in New York City as a patent attorney. Eli Grossman is an actuary for the Union Labor Life Insurance Company in New York City, and Phil Slater acts in the same capacity for the Equitable Life Assurance Society. Roger Krey is teaching mechanical engineering at Clarkson, a school of 1,400 students in the far north of New York State, about 350 miles out of New York City.

Dave Varner reports he is still practicing patent law in Washington, D.C. Bob Woodcock operates the John M. Glover Agency, Inc., general insurance, located in South Norwalk, Conn. Frank S. Cooper continues as associate research director of Haskins Laboratories, New York City (nonprofit research foundation), and he and his colleagues are busily making synthetic speech as one aspect of research and psychoacoustics.

So much for the news. You'll hear from us every month. Keep writing. — ROBERT E. WORDEN, *General Secretary*, Fidelity-Philadelphia Trust Building, 123 South Broad Street, Philadelphia 9, Pa.

• 1938 •

Last April, Elayne Rutstein became engaged to Edward L. Cohen. Also last April, Mary Agnes O'Reilly was engaged to Frederick J. Hurley, major, U.S.A. Fred was formerly commanding officer of the Chicago Chemical Procurement District and is now attending Harvard Graduate School of Business Administration. In June, Mr. and Mrs. Charles H. Tipping of Claremont, N.H., announced the engagement of their daughter Esther to W. Franklin Burditt. Frank is working at the Brookhaven National Laboratory on Long Island. In June, Evelyn Leah

Lipshires became engaged to Will Lyons and on August 20 they were married. Will was with the War Production Board and the Civilian Production Administration and is now with the New York brokerage firm of Dreyfus and Company. Congratulations, men!

On June 12 Jeffrey Wunderle Weir was born to Don and Bette Weir. The Weirs added to their home to accommodate this new arrival, and in addition to a bedroom wing, they added a swimming pool. Don has a retail camera store in Hollywood, Calif. This gives the Weirs two girls and two boys. To keep even with them, on July 7 Carol and Al Wilson had their fourth child and second son, Mark Doty Wilson. To take care of their expansion, they needed more than just a wing and are completing a new house in Lexington. On October 19 Norman and Hilde Bedford had their second child and first son, Norman Clark Bedford, Jr.

And now for news of business and professional changes. John P. Withers has become a partner in the Morton-Withers Chemical Company of Greensboro, N.C. He was previously with Standard Oil Company for 12 years. John is married and has three children. Paul Tillson has become a partner in the law firm of Semmes, Keegin, Robinson and Semmes in Washington, D.C. They are engaged in the practice of law relating to patent causes. Donald Severance is chairman of the school committee in the town of Acton, Mass. You all should know that Don is secretary-treasurer of the M.I.T. Alumni Association.

Boris Boguslavsky is professor of architectural engineering at Georgia Tech. He went there in 1946 from the University of Akron where he was head of the department of civil engineering. Last April 5, Reeves Morrisson, head of the analysis section of the research department, United Aircraft Corporation, addressed the Southern New England section of the Yale Engineering Association at the University Club in Hartford. His discussion covered the gas turbine, which, although relatively a newcomer to the field of power production, has, in the last five years, established itself firmly in the aircraft industry and has started an opening wedge in the fields of marine, railroad, and central-station power. Harry R. Seiwel, physical oceanographer at the Woods Hole Oceanographic Institution, is one of the 158 "scholars and creative scientists" named as receiving Guggenheim fellowships. Guggenheim awards are generally considered the top scientific awards given in this country. They are given as post-doctorate fellowships to older, established scientists and, within a broad framework, allow more or less complete freedom. At his laboratory on the top floor of the Oceanographic Institution, Dr. Seiwel said he had made no definite plans as yet for the year of study and investigation allowed him. He may spend some time abroad. As to his work, Dr. Seiwel described himself as "a physical oceanographer particularly interested in the problem of the structure of the sea surface, in wave heights, in what makes the surface rough."

Bob Johnson and his family have moved to Wellesley. Bob is the assistant treasurer of the Mutual Boiler Company of Boston and the Boston Manufacturers Mutual Fire Insurance Company. Last June, Rev. William G. Guindon, S. J., said his first public mass at St. Brendon's Church in Dorchester. He left M.I.T. in 1936 to join the Society of Jesus and studied at Shadowbrook, Lenox, Mass. He later studied philosophy at Weston College and taught at Boston College and Boston College High School in 1943 to 1945. In 1945 to 1947 he took special studies at M.I.T. and studied theology at Weston College in 1947. The office of the director of the Springfield division of Northeastern University announces the return after eight years of one of its former faculty members, Walter F. Kaufman of 40 Knox Street, Palmer. He renewed his local academic connections this September. He teaches mechanics to Springfield Northeastern students who seek bachelor degrees of business administration in engineering and business. At present, Mr. Kaufman is employed as wire rope engineer in the Palmer plant of the Wickwire Spencer Steel division of the Colorado Fuel and Iron Corporation. In addition, he is a company representative and member of the Wire Rope Manufacturers' Standardization Subcommittee of the American Petroleum Institute, and a member of the division of production of the American Petroleum Institute. Among his other occupational activities, he is secretary of the technical committee of the Wire Rope Institute.

Recently, the National Bureau of Standards announced the completion of SEAC, the first automatically sequenced, superspeed, electronic computer to be put into actual operation. A good bit of credit goes to Ralph J. Slutz, senior physicist in SEAC design. Successful operation of the new 300-million-volt betatron at the University of Illinois and its production of artificial cosmic rays 14 billion times more concentrated than those showered upon earth from outer space is a project in which people from M.I.T. had a special interest. A principal figure in the development and building of it was Professor Clark S. Robinson, Jr.

Joseph N. Kotanchik is the newly elected secretary of the M.I.T. Club of the Virginia Peninsula (Newport News). — ALBERT O. WILSON, JR., *Secretary*, 24 Bennington Road, Lexington 73, Mass. RICHARD MUTHER, *Assistant Secretary*, Methods Engineering Council, 822 Wood Street, Pittsburgh 21, Pa.

• 1939 •

Harold Seykota reports from Portland, Ore., that he is the father of two children and now with the Portland Gas and Coke Company as manager of by-products sales. It will be remembered by those at the 10th reunion that Hal had just finished a job in Rio de Janeiro where he worked on a dry ice installation. In changing jobs, Hal stated: "... Trying to figure on the angles of an operation that grosses several million dollars a year on by-products sales is quite a challenge and I enjoy it very much."

Jim Barton and Ted Snow are with Boeing Aircraft in Seattle, Wash. Also on the West Coast and in the airplane business is Woody Baldwin who is with an aerodynamics consulting firm. Bob Fife '40 is living in Los Angeles. Ben Desimone is doing fine work for Curtiss Wright propeller division in Caldwell, N.J. Those in the vicinity are urged to call Ben at his home in the mountains of New Jersey. When last seen, Ben was the proud father of two children, a boy and a girl.

Irv Weiss is research engineer with Mack Manufacturing Corporation in Allentown, Pa. To boot, he has a small farm in the heart of the Pennsylvania Dutch country approximately 12 miles out of Allentown. There he and his wife are bringing up three youngsters. Wiley Corl, past BMOG (Walker Committee, and so on) is now with J. V. Calhoun Company in Philadelphia, distributing Chromolox heating elements to wholesalers and contractors. At the 10th reunion, Wiley made several bets with Bill and Adie Pulver, Bill Brewster and Fred Cooke that on the 15th there would be five offspring. The score to date — three.

Mike Herasimchuk was married on October 14 to Jean Rheiner of Bethlehem, Pa. The couple honeymooned at the Greenbrier, White Sulphur Springs, W. Va. Mike is maintenance metallurgist for the Bethlehem plant of the Bethlehem Steel Company. Donald L. Herr was married on September 29 to Anna Sophie Reagan in New York City. Don has been professor of electrical engineering at Brooklyn Polytechnic Institute. — **STUART PAIGE, General Secretary, 701 Mill Plain Road, Fairfield, Conn. Assistant Secretaries: GEORGE BEESLEY, Whittemore-Wright Company, Inc., 62 Alford Street, Charlestown 29, Mass.; MICHAEL V. HERASIMCHUK, Post Office Box 495, Bethlehem, Pa.**

• 1940 •

As an appropriate beginning for this column under a new class secretary, I will report on another new arrival. Bob and Mrs. Hall announce the birth of Robert Green Hall, 4th, on February 4, 1950.

R. Dixon Speas recently wrote to Mr. Dudley, editor of The Review, and the following is an excerpt from that letter:

"I was, up until May of this year, with American Airlines for the entire time since graduating from M.I.T. in 1940. At American Airlines, I worked in the Operations and Engineering Departments and at the time of my resignation in order to accept my present job, I worked as special assistant to the president. As United States representative of A. V. Roe, Canada, I am now representing that company with respect to its jet transport plane, which incidentally, is America's first jet transport."

The Providence, R.I., Sunday Journal, in its magazine section of May 14, 1950, carried a three-page article on Charlie Freeman who is president and director of the Royal Victoria Hotel Company, Ltd. The hotel is in Nassau in the Bahamas. Among the illustrations in the article is one of Charlie, his wife Carla and their two children, Robert and Charles, Jr., in front of their attractive home "Landfall."

There are several weddings to report. Irene Colm was married on July 16 to Samuel W. Stewart. Sam did graduate work with us and is now a radio engineer with Sperry Gyroscope Company, Great Neck, L.I., N.Y. On July 29, June Cooper was married to Kingsbury T. Jackson. Mrs. Ruth-Ellen Loneragan Lockhart was wed to John R. Pellam on July 26. John is now doing research work at the National Bureau of Standards in Washington, D.C. Barbara N. Hollister was married to Robert Q. McDonnell, Jr., on July 1. Bob is an industrial engineer with the Eaton Paper Company of Pittsfield, Mass. Helen Garret Danaher was wed June 9 to A. Gregory Jameson. Greg received his master of science degree with us. Both he and his bride are now interns at Bellevue Hospital in New York City. Betty Jane White was wed on July 8 to Mason B. Lindsey. Mason also received his master's degree with us and is now connected with the American Viscose Corporation in Marcus Hook, Pa.

Paul M. Butman, who has been in the United States Air Force since 1940, was recently appointed to the permanent rank of lieutenant colonel. He is now attached to the Atomic Energy Commission in Washington, D.C. Previously, he was in charge of the stability section at Wright Field in Dayton, Ohio. Tom Creamer was one of four men recently promoted to the position of assistant vice-president of the National City Bank of New York. Before going with the National City Bank, Tom was assistant to the president of M.I.T. and later was executive assistant to the scientific chief of the Office of Naval Research. As former Assistant Class Secretary, Tom has been a frequent contributor to this column.

Ed Hellier is now production manager of the new Holiday Brands plant at Walpole, Mass. The plant uses the recently patented high-vacuum process developed by the National Research Corporation for making the new Holiday crystalline instant coffee. Ed was formerly director of the Dehydration Department of National Research. Karl L. Fetter who obtained his doctor's degree with us was recently appointed as an assistant to the vice-president in charge of operations of the Youngstown Sheet and Tube Company, Youngstown, Ohio. Rowland H. Peak, Jr., has been made assistant to the division engineer of the New Orleans terminal division of the Illinois Central Railroad. Although numerous classmates have come to the Patent Office on business, the only one whom I have seen recently is Mort Nickerson '37 who received his doctorate with us.

The balance in the class treasury as of October 15, 1950, is \$321.55. At the 10th reunion it was voted to pay 50 cents a year per person back into this fund. Some of you may prefer to send a check for \$2.50 and thus pay up through our 15th reunion. In either event, please mail your contributions to Al and if you can spare an extra minute or two enclose a note with news about yourself, your family or about other classmates you have been in contact with lately. — **ALVIN GUTTAC, General Secretary, 7114 Marion Lane, Bethesda 14, Md. MARSHAL D. MCCUEN, Assistant Sec-**

retary, Senior Project Engineer, Oldsmobile Division, General Motors Corporation, Lansing 21, Mich.

• 1941 •

There was a time when your Secretary lamented the lack of letters from classmates and rationalized that this was the reason for the failure of the '41 column to appear in several issues. But the shoe is on the other foot now and we have a stack of mail to bolster our reports. In fact, one letter offered sympathy for the "passing" of the '41 notes. Enough is enough. We have some newsworthy comments first in regard to our coming reunion. It is our 10th, you know. Five of those 10 years have been taken up with a war and so our Class is perhaps a little slow in settling down. We thought that many fellows who would have liked to attend our fifth reunion were more concerned with problems of jobs, location, and finances at the time, and so had to miss it. We hope that the intervening period has seen the solution to such matters and that everybody who has an inclination to swap notes with his contemporaries at the Institute will take advantage of the opportunities afforded by '41's 10th reunion.

Reid Weedon has been appointed by Will Mott to serve as reunion chairman, a job calling for much effort and time on Reid's part. No doubt you have heard from Reid by now in reference to your preference (no pun). If you haven't answered his letter by now we would appreciate your looking into the matter; or worse, if you haven't heard from him, please let us know and we will put your current address on the mailing list for information on the reunion. One more point on the subject — if you are approached to lend assistance to preparations for the reunion, say yes. It is probable that the fellow asking you is giving a good portion of his time to the effort and needs a last-minute boost to finish the job. Finally, come one come all. We shall try to keep you posted in this column, but remember that you will be more up to date on things if you are on Reid's mailing list.

From Brazil, John Webber writes of his recent marriage to Ingrid Hahner of Rio. Ingrid is an interior designer and decorator who studied in New York's School of Interior Decoration. John is under contract to the Brazilian Air Ministry as associate professor of meteorology in the Institute of Technical Aeronautics. The Institute is moving to a new plant near São Paulo, Brazil, shortly. We wonder how the recent presidential elections will affect John in Brazil. Cynthia Button recently became the wife of Arthur Robinson in Schenectady. Arthur took his undergraduate work in France and his master's degree at M.I.T. And in Lowell, Ellen Cunningham was married to Harry Lord. Edith Rankin is now Mrs. William Staudenmaier, with the ceremony taking place in Rochester.

We mentioned recently that Wallace Howell was leading others in the '41 group in publicity — primarily as a result of his rain making activities for New York City. We have received some additional news stories on his activities at Pinkham

Notch, this time producing snow for the skiers. Another '41 man has come into the weather limelight. Jerome Namias, who obtained his advanced degree with us, is now head of the extended forecast section of the United States Weather Bureau. Namias is hitting a high average in his 30-day advance summaries on the weather and is frequently consulted by businessmen with a view to planning their marketing problems. Outside of the Soviet Union, Namias' reports are the most extended weather forecasts issued by any government in the world. Soviet activity in the field is not known. We hear that Ed Beaupre was recently made a lieutenant colonel in the Massachusetts National Guard. Ed is now with the F. J. Fleming Paper Company in Lowell. Paul Erlandson, a specialist on guided missile and antisubmarine instruments, has recently been appointed chairman of Southwest Research Institute's physics department. Paul earned his master's and doctor's degrees at the University of Texas — so said the news clipping. From Paul himself we hear that the family now totals four. Paul tells of having dinner with Bill and Rusty Ahrendt in Maryland and discussing the industrial empire known as the Ahrendt Instrument Company. Want to see the Erlandsons at the 10th. Bob Parry has just been recalled to active duty with the Marine Corps.

"WINS HARVARD ACCLAIM, Atlantian Develops New Blood Separator," and so the headline went describing Cherry Emerson's development of a gadget to separate blood into an increased number of portions without damage so as to permit more efficient use and study of blood. Cherry showed his development to Harvard and was given a grant for its completion. He is working under Professor Cohn of the medical school. Bill Hart is at Fort Belvoir and is attending the 1950 version of the Army's annual exercise in logistics. Calvin MacCracken has recently convinced the American Research and Development Corporation that his new concept of home heating is worth backing and he is at present engaged in launching a new type furnace, product of a new corporation of which he is the head. Complicated, but we think you get the idea. Best wishes to Patricia Moran and Michael Driscoll in their coming marital venture. — STANLEY BACKER, *General Secretary*, 335A Harvard Street, Cambridge 39, Mass. JOHAN M. ANDERSON, *Assistant Secretary*, Saddle Hill Farms, Hopkinton, Mass.

• 1942 •

Fred Sargent wrote early in the summer, sending an account of his recent activities which derive from work for the past two years with the Army Medical Nutrition Laboratory in Chicago and with the University of Illinois College of Medicine. During part of this time, he participated in a winter ration trial at Fairbanks, Alaska. Temperatures encountered, —60 degrees to +40 degrees — do they put rum in that ration, Fred? Dr. Sargent is apparently a participant in that fine old scientific custom, the professional romance; he writes of a joint paper with his

wife on nutrition. This fall the Sargents are in Urbana where Fred is continuing with the University of Illinois as a professor of physiology. Thanks for the pleasant and informative letter, Fred.

Jack Finger, who has been teaching high school math in Newton, has recently gone to Alton, N.H., to be head master of the high school there; the Fingers have recently also acquired a second daughter, Susan. By means of an announcement that Bill Robertson is teaching at a New Haven Y.M.C.A. junior college, we learn that he is principally engaged as an assistant professor of metallurgy at Yale. Alan Macnee, who has been teaching for a year in Gothenburg, Sweden, is a new assistant professor of electrical engineering at the University of Michigan.

We still have occasional students among our classmates; Irving Fagerson and Boyd Pack both got themselves Ph.D.'s this June, from the University of Massachusetts and from North Carolina State College, respectively. A State Department release informs us that Robert Owen, recently of the consulate at Helsinki, has been returned to the Foreign Service Institute for the purpose of studying Russian.

Again the influx of weddings and engagements leaves us wading through billows of marquise, beige crepe, fingertip veils, and Chantilly lace left over from the summer nuptials; we have eleven weddings to report. Among these are: Muriel Mioson to Charles Ruckstuhl in July at Groton; Mary Louise Emery to Philip Hodgdon in May at Portsmouth, N.H.; Barbara Wright to Edward Todd in June at Rockport; Barbara Muther to John Lacy last February in Chestnut Hill; Nathalea Vincent to Bradford Torrey in August at Arlington; and Julie Harmon to James Crooks in July at Hillsboro, N.H. We have three pictures, an announcement and six clippings providing an account of the festivities connected with our own Lou Rosenblum's wedding to Sandra Lee Pletman on August 21 in New York City.

We have an announcement of Bob Jacobson's wedding in July to Sabina Zeidner in New York; and the press provides wedding news of Giulio Ascoli and Martha Loomis in June at Bedford and of Bryan Smith and June Rafferty at Rye, N.Y., also in June. Florence Laferrier was married to Felix DeLeo on July 4 in Lowell; always interested in following Felix' career in the newspapers, we note that he is now an expert assistant to the commissioner of public safety (he was a simple assistant at last notice).

Preparations for more news in the wedding paragraphs are evident in the engagement announcements of: Marjorie Barry of Cambridge and John Barry; Blanche Skidmore of Brooklyn and David Dettinger; Esther Brock of Westboro and Richard Gannon; Alice Jury of Woodhaven, N.Y., and George Spies; and Mary Coffey of West Hartford and Marshall McGuire. Finally, Bob Kraus writes to say that he has met a wonderful girl, Miriam Sorkowitz, and that they are to be married in December. Bob is with Edo Corporation in College Point, L.I. He reports having run into Ros Austin in Lake George on Labor Day.

News of new offspring has been surprisingly light recently; besides little Susan Finger the spotlight belongs solely to William Bradford Darling, pride of Brad and Ann, born on April 3, a fine husky boy, and at latest report breaking out with teeth. — GEORGE M. KAVANAGH, *Acting Secretary*, 25 Eaton Court, Wellesley Hills 82, Mass.

• 1943 •

Congratulations to the Bailey H. Nieders on the birth of a seven-pound, 12-ounce son, Henry Seth on September 28. The Nieders are now living in Tacoma, Wash. Eugene S. Pulk, who came to M.I.T. from Annapolis, has taken a post as teacher of mathematics and physics at Governor Dummer Academy in South Byfield, Mass. Pulk, formerly a research associate in meteorology at Technology, has completed a book now ready for publication entitled, "Laboratory Manual for Weather Forecasting."

The former Phyllis Marian Billman of Hartford, Conn., and Arthur Angelos were married in the St. George Orthodox Church in Hartford on September 17. The engagement of Jane Byrne to John Michael Considine has been announced in Philadelphia.

When I hear that a classmate is living somewhere other than where my records purport him to be, I am inclined to think (erroneously?) that he must have recently moved. Obviously, my records may be (and likely are!) somewhat behind the times, as he may have moved months or even years ago. Nevertheless, it seems to me that you would like to know who has moved within "bull-session" distance so I shall continue to report new addresses. Recently, for instance, I have been notified that Raymond M. Redheffer is at the University of California in Los Angeles and that Major Gerard M. Shuchter has moved to Cherry Point, N.C. Robert C. Snyder and Wendell P. Turner, Jr., are now both in Arlington, Va., and from Dallas, William B. Bryant has moved to Boston. Last on the list of address changes is Charles S. Jones, Jr., who is to be found in Kingston, N.Y.

Well, mates this is all for now — cheerio. — CLINTON C. KEMP, *General Secretary*, 29 Verlynn Avenue, Hamilton, Ohio.

• 1946 (2-46) •

At this writing, your Secretary reports an active planning of our fifth reunion which is set for the week end of June 9. Ted Heuchling capably heads the fifth reunion committee. By the publication date of this issue of *The Review*, probably you will have received another publicity release giving the details. If you haven't received the word and want to hear about what's planned, drop a card to C. S. Lyon, Reunion Publicity Chairman, Room 20D-216, M.I.T., Cambridge 39, Mass.

Engagement announcements are those of: Karl Peterson, ensign, U.S.C.G., and Nancy Libby of Portland, Maine; Al Litchfield and Libbie Stoklasa of Weleetka, Okla.; Fred Pferdmenges and Mary Bullick of Forest Hills, N.Y.; E. Richard Smith and Patricia Lindeman of Roches-

ter, N.Y.; Rowland Scott Bevans and Jean Fallow of Fairhaven, Mass.; and Leo Malloy and Elizabeth Callejas of West Newbury, Mass. — There are two fall weddings to report: Donn Pennebaker to Sylvia Bell of Pennsylvania, and John Manley, Jr., to Joan Blackhall of New York City.

Reports from here and there tell us that Howie Perlmutter is in France studying at the universities of Paris and Bordeaux; John Marr is on the staff of the Cardigan Mountain School in Canaan, N.H.; and Ed Hill is now assistant to the services department manager at Raytheon. — JAMES S. CRAIG, *General Secretary*, 387 Harvard Street, Cambridge 38, Mass.

• 1948 •

Weddings and engagements make up the bulk of the news for this month. Engagements reported recently include: Grace Hackel to Tufts College to Irwin Lebow, Virginia Ann Corbly of the University of Cincinnati to Frank J. Iskra, Alma Mastrangelo of Wellesley College to Francis Strabala, Joan Conley of Auburndale to John Juechter, Anne Moore of Smith College and Emerson College to Jaime Olacchia, Norma Miller of Wellesley College to Wilfred Roth.

Marriages include: Rita Rolfes to Robert Ellsworth, Pearl Gilmore to W. J. Widmer, Margaret Hutchinson to Francis Haines, Joan Bramsall to Frank Carter, Joy Campbell to Francis Jablonski, Ann Wendell to Paul Winsor, Jane Walden to Jules Levin, Ellen Haebler to Philip Skove, Jeannette Dennehy to Joseph Fantone, Jr., Janet Dant to Peter Johnson, Ruth Porter to Frank Guptill, Jr., Ellen Beardslee to Walter Mellen, and Mariagnes Gallagher to George Clifford, Jr.

At last reports Sanford Klion was living in New York City. He is married to Marilyn Prager, who is a Hunter College graduate, and employed by the Kellogg Corporation as a design engineer on heating, ventilating and evaporative cooling work. Stanley Berinsky works at the Evans Signal Lab in Belmar, N.J. He is doing de-

velopment work on radar control and information systems. A new home and graduate study at Rutgers keep him busy a good part of the time. Dave Brown is at the Crocker-Wheeler Electrical Company on sales engineering work. Occasionally he runs into Dick White, Ronnie Greene, '49, Rowland Vance, '49, Glenn Stagg and Fred Howell, '47, all of whom are in the Greater New York area. Nathan Parke has a consulting office in Concord, Mass., where we are invited to bring any and all problems in applied physics and mathematics. Marvin Campen reports from the California Research Corporation where he is doing development work on lubricating oil additives. Roy Brakeman and Thron Riggs are in the same area on training programs with Standard Oil, and Jim Hoaglund 6-45 lives in Santa Monica with his wife and two youngsters. Donald Nelson, Jr., is with Lockheed Aircraft in Burbank, Calif. He spends his spare time flying, and he has visited Tom Monroe in the same area. Jack Barry works in St. Paul for Minnesota Mining and Manufacturing Company. He is on new product development as part of a company-wide training program. Joseph Newell has stayed at M.I.T. where he is doing research in electronics.

Classmates in the news recently include Miles Sawyer who is doing graduate work in food technology at the University of Southern California. He has been awarded a fellowship by the University of \$1,800 for research work. Leslie St. George made the front pages when he escaped from a ditch cave-in on a construction project where he was engineer. He protected his head as the dirt caved around him, and then dug his head free with his hands. Thanks to cool thinking and quick action he suffered only slight scratches in what might have been a serious accident. Adolf Monosson has been named a director of the Cosmopolitan Manufacturing Company of Boston. He has recently graduated from the Harvard Business School and he has been associated with his father in the business during summer vacations. Calvin Mooers' idea for

a machine capable of scanning, reading, and printing reports from vast libraries of information in a matter of minutes was the subject of a feature in the Boston *Herald*. The Doken, as he calls the projected machine, would be capable of sifting the pertinent items from as many as 100,000,000 entries in a library. The savings in research time from such a machine are quite obvious, and it awaits only the financing to support it, about half a million for the machine and two million annually for coding new entries and running the system. Mr. Mooers expects that one central agency, such as the Federal Government, will have to support the project since it requires so much money.

The Secretaries wish to remind you that you may obtain the latest addresses of your classmates and others who have attended Technology merely by writing to the Alumni Office or to the Class Secretaries. — WILLIAM R. ZIMMERMAN, *General Secretary*, 3000 Albermarle Street, Washington, D.C. RICHARD H. HARRIS, *Assistant Secretary*, 19 Lancaster Street, Worcester, Mass.

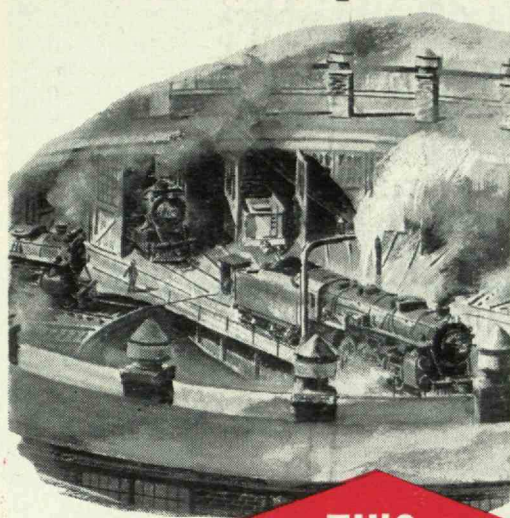
• 1950 •

Because of the usual heavy deluge of class notes for the November issue, and the consequent lack of space, the following paragraph was regretfully but necessarily deleted from the 1950 column.

Harold Reid is going to Switzerland to study the further uses of concrete. Ralph Horne was awarded a two-year teaching fellowship at the University of Vermont. Carl Long is staying on at Technology to continue his studies in civil engineering. Jack Cord is also sticking around the Institute for another year or so. Phil Byrne is in Rochester, N.Y., working for the Delco Company. He wants everybody to go out and make sure they have a Delco heating unit in their home before they buy it. (We have to keep Phil in a job somehow.) Lee Powers is out in Rockford, Ill. Incidentally, he became the father of a baby boy early in July. — JOHN T. WEAVER, *General Secretary*, 1772 East Tremont Avenue, New York 60, N.Y.

What *important* thing

was necessary



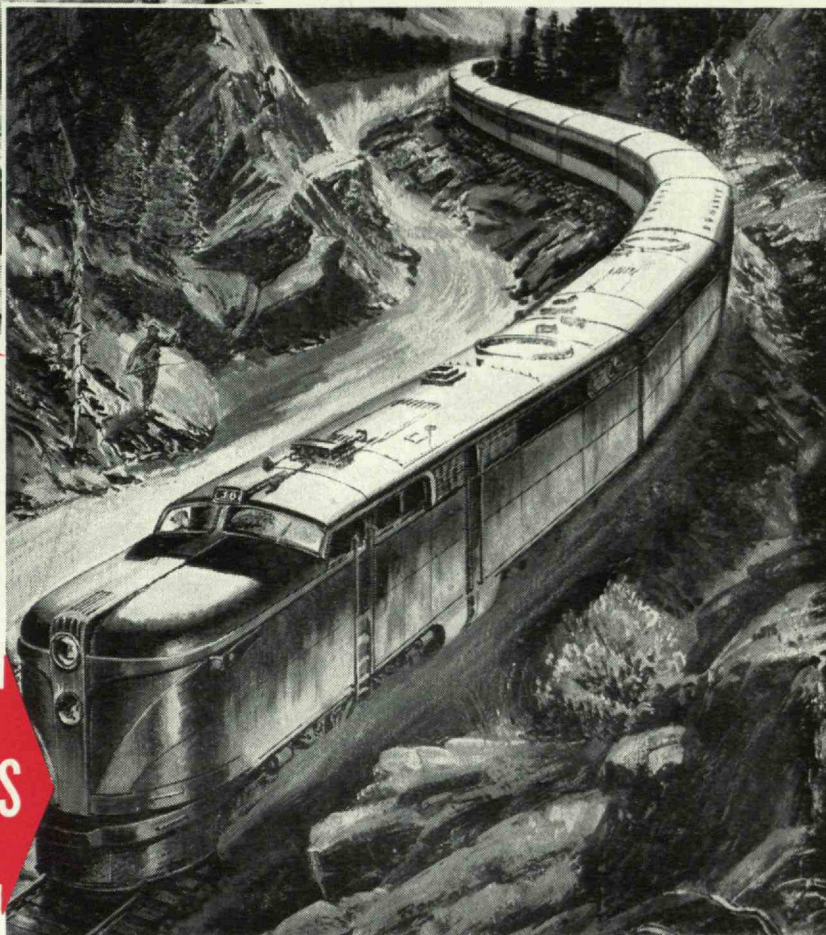
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The instrument consists of a one megacycle oscillator whose output is loosely coupled to a resonant detector circuit. The resonance indicator includes a crystal rectifier and a d-c microammeter loosely coupled to a resonant circuit.

Substitution method of measurement is used. The capacitance of the calibrated condenser is reduced to restore resonance after the unknown is placed across the terminals. Resonance is indicated by maximum deflection of the microammeter.

A panel trimmer condenser is provided both to standardize the circuit at zero capacitance and to balance out the capacitance of leads to the unknown. About 5 $\mu\mu\text{f}$ can be balanced out on the low range, and about 120 $\mu\mu\text{f}$ on the high range.

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GOOD ACCURACY: Low range: from 0 to 50 $\mu\mu\text{f}$, $\pm(3\% + 0.3 \mu\mu\text{f})$; between 50 and 80 $\mu\mu\text{f}$, $\pm 6\%$. High range: $\pm(3\% + 5 \mu\mu\text{f})$

APPROXIMATELY LOGARITHMIC SCALE on low capacitance range, makes readings easy

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